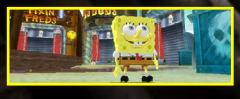
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3dcreative

GENERATION 7

A New Series of Articles Delves Deep into the Art and Technology of Next Generation Consoles and Games



ARTICLES

Americas Top Model in 3D, Numberjacks & Next Generation Games



INTERVIEWS

Peter Sanitra, Anders Lejczak & d0m



GALLERIES

Federico Gustavo, Jure Zagoricnik, Peter Schuster, Tomáš Král & more...



MAKING OF'S

'Madness', 'Say cheese' & 'Teleportation'



TUTORIALS

Tuc Tuc, Composition, Angles & Viewpoints, Lighting & RTSquare Render



Editorial

Hello again. Thanks for sticking with us through our 'technological transfer' when 3DCreative starts to make full use of the digital features we posess. We have a slight delay on the protection of the mag but soon we will have a fantastic new system to make life easier for all of you! This month we are very pleased that the mag is continuing to remain close to over 150 pages per issue, and that we seem to be keeing that up! We have a lot of content coming your way in future issues. I would like to say a big thank you to all of you who sucessfully unlocked the 'Lite' issue; we are testing a new system which protects the magazines and by entering your email address you have given us much more confidence in this. Please note that we will not use these email addresses for anything other than to see how many of you are reading the lite issues! We also begin a series of articles on the world of Next Generation gaming. I hope will be of interest to many of you as we have interviewed some of the worlds biggest and best games studios to find out what they are doing. Anyway, enough from me, it's time for another cup of tea and I seem to be the only one making them around here these days... Enjoy! Ed.

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Free Stuff!
Wherever you see this symbol, click it to download resources, extras and even movies!



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CONTRIBUTING ARTISTS

Every month, many creatives and artists around the world contribute to 3DCreative Magazine. Here you can read all about them. If you would like to be a part of 3DCreative or 2DArtist Magazines, please contact ben@zoopublishing

TUC-TUC

Tuc Tuc Tutorial Artists. These wonderful people are responsible for translatiing our 3DSMax content for Cinema 4D, Lightwave, Maya & Softimage XSi. Most of them have been with us since the joan of Arc series, and all worked on the highly popular Swordmaster Series.





LUCIANO IURINO



I started back in 1994 with 3DStudio on MS-Dos as Modeller/ Texture Artist. In 2001 I co-founded PM Studios & I still work for it as Lead 3D Artist. Recently we have developed the videogame “ETROM – The Astral Essence”. I also work as a freelancer for different magazines, web-portals, gfx & videogame companies. Recently I left the 3DS Max environment to move on to XSI.

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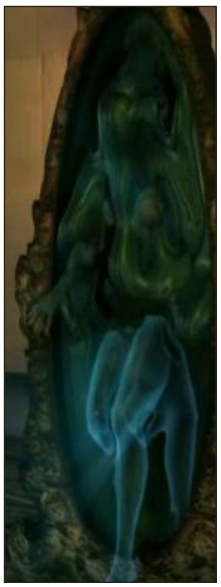


ROMAN KESSLER

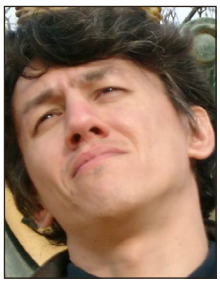
Freelance 3D Artist, Germany. In ‘93 I made my first 3D model using a shareware 3D software for DOS that was very limited, but I got addicted & started with Lightwave in ‘97. Since 2005 I’ve worked professionally as a freelancer. I like all 3D tasks equally, with little preference to modelling and texturing. Besides creating client-based work, I also work on personal animation projects.

www.dough-cgi.de





BOGDAN HORDUNA



3D VFX Artist, Iasi, Romania. I started back in 1999 with 3D Studio Max, but in 2000 trained in Maya. I’ve been a Modeller and Texturer for a few 3D animated movies & two games. I’m also a Modeller, Dynamics & Particles, Lights & Render Supervisor for many commercials, musical video clips and industrial presentations.

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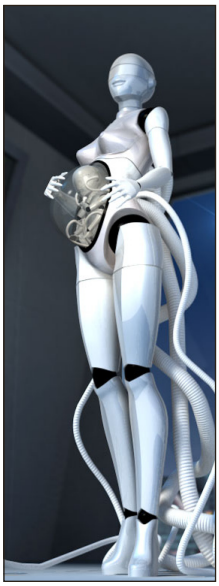
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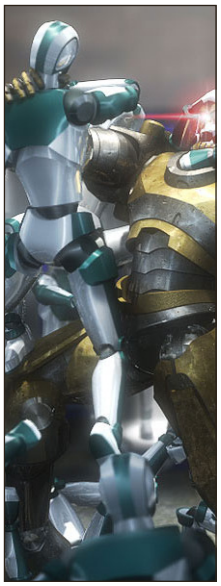


NIKI BARTUCCI

Freelance 3D Modeller, Italy. I began working in the Computer Graphics field in 2000, as Illustrator & Web Designer. In ‘03 I began using 3D software, such as C4D and 3DS Max. In ‘03 I worked on ‘ETROM - The Astral Essence’, RPG video-game for PC, developed by PM Studios. I’m now a freelancer & specialise in commercials. I especially like RPG & RTS video-games.

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GIUSEPPE GUGLIELMUCCI



Freelance 3D Modeller / Animator. I began using computers with the epoch of the vic20, & Cinema4d was my 1st 3D software. I started working in the field of CG in 1999, in commercial design. In 2003, I worked on ‘ETROM - The Astral Essence’, RPG video-game for PC, developed by PM Studios. Currently I’m hoping to work in the video-games industry & develop my own game.

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Anders Lejczak

I work as a Project Manager at one of Europe's largest digital agencies, and I'm mostly involved in projects for the automotive industry. I've been building models & drawing since I was a little kid, and my ambition is to work more hands on with CG rather than with project management in the future.

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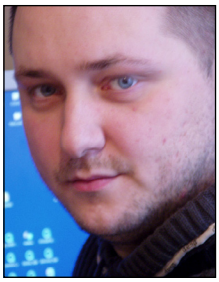


Spencer Murphy



Photographer, London. I work freelance whilst pursuing my personal artwork. I have been included in exhibitions in London, Germany & New York. My most recent project, 'Wastelands', will be launched at the end of March 2007 at The Association of Photographers Awards. When not pursuing Photography I enjoy snowboarding, surfing, good food with good friends & watching films.

www.spencermurphy.com

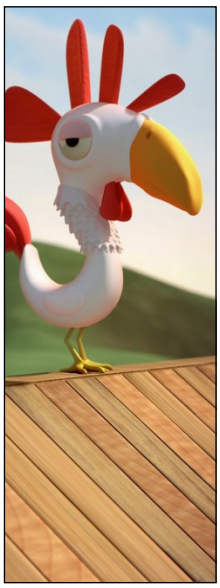


Marcin Solarz

3D Artist, Kraków, Poland. I began in CG in 2000 as a Commercial 2D Graphic Designer. In 2002, I started using 3D packages, mostly 3DS Max and XSI. Currently I'm a freelancer specializing in the game industry. I plan to create a huge Polish CG community.

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Cesar Alejandro Montero Orozco



3D Artist & Computer Engineer, Zapopan, Jalisco, MEXICO. I believe in balance in life, and all of its aspects. I appreciate my health above everything else. My career goal is to tell compelling stories using CG in feature films.

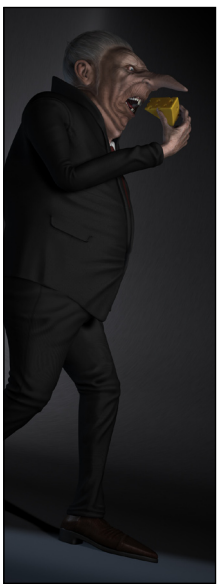
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Eric Provan

Modeller / Texture Artist. I began CG a little over 2 years ago. I took a job as a Game Artist at Kush Games/2ksports. My goal is to eventually get into film, but right now I'm happily taking in as much wisdom as I can from the wonderfully talented people at Kush. I'm extremely passionate about 3D Modelling & look forward to spending the rest of my days creating things.

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Would you like to Contribute to 3DCreative or 2DArtist Magazine?

We are always looking for tutorial artists, gallery submissions, potential interviewees, Making Of writers, and more. For more information, send a link to your work here: warin@zoopublishing.com

totalTextures

v4: r2

Humans & Creatures

The Original Total Texture collection was created in 2001, utilising the best methods and technology of the time. Since then, techniques and technology have both moved forward, and here at 3DTotal we felt that although the original collection is still widely used and highly regarded among artists and studios of all calibers, it was time for an update...

This enormously improved version of the original texture collection now contains 272 individual Materials, comprising of over 938 individual, hand crafted texture maps. Every Texture now has its own unique colour map, bump map. There is also over 50 new alpha and 100 new specular maps.

What's new?
This new collection consists of 272 materials, comprising of 938 individual maps!! (Colour, Bump, Specular and Alpha maps). We have also included 36 psd files for some of the textures, allowing you to customize some new textures of your own.

DVD Contents:
31 Creature Eyes
11 Creature Furs
2 Creature Miscellaneous
6 Creature Scales
14 Creature Skin (Body)
27 Creature Skin (Facial)
16 www.3d.sk images
16 Human Eyes
2 Human Hair
12 Human Misc (Body)
24 Human Misc (Facial)
47 Human Skin (Abnormal)
2 Human Skin (Old)
13 Human Skin (Tatoo)
34 Human Skin (Young)
15 Human Skin (Reference)



15 Collections of amazing Textures

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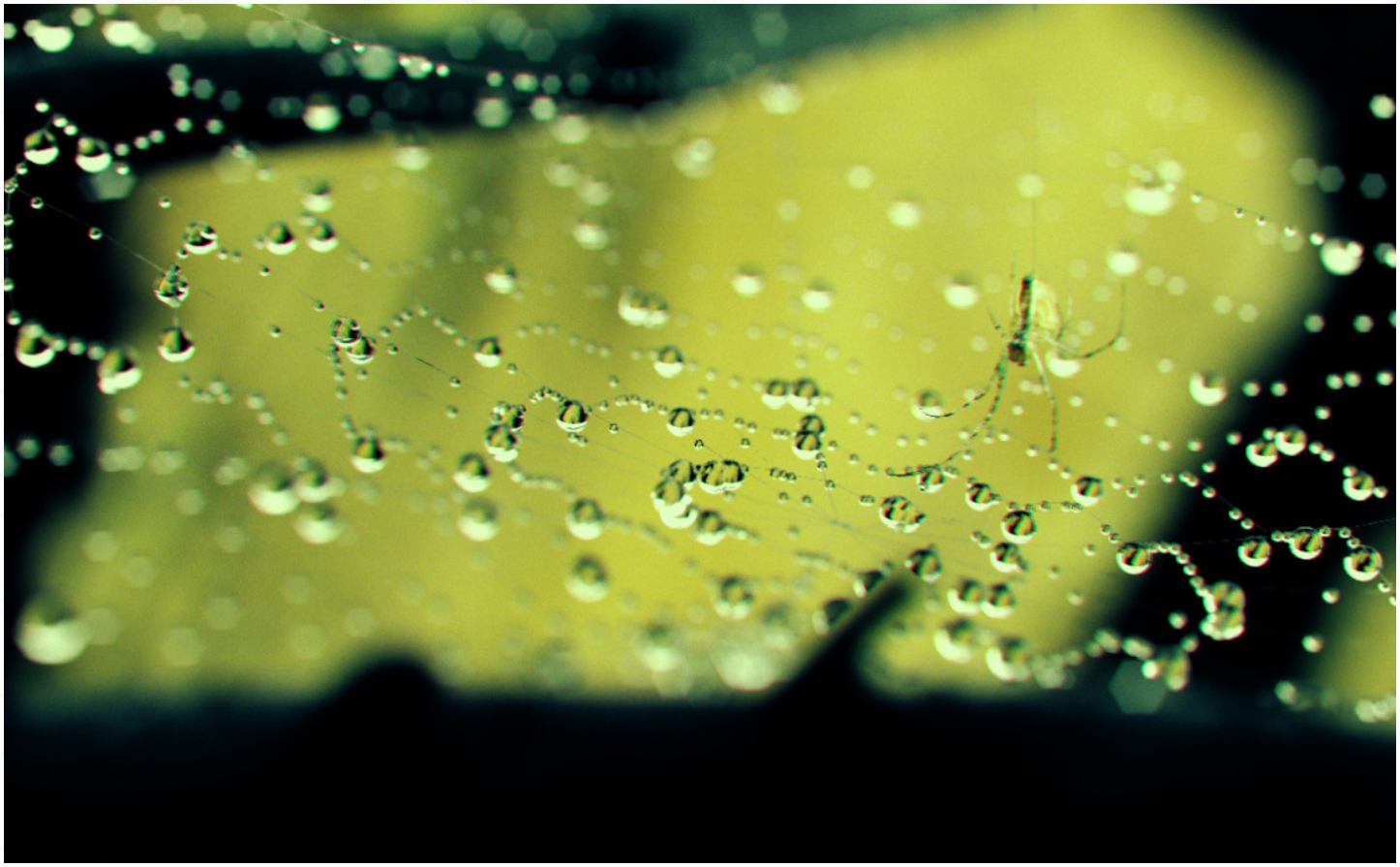
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"I enjoy everything about CG. I'm always trying to learn as much as possible from all parts equally."

Interview with: Peter Sanitra

Self-taught CG artist Peter Sanitra talks to us about his years with working computers, from video games, architecture and film...



PETER SANITRA

Hello Peter, could you introduce yourself to our readers please? My name is Peter Sanitra, I was born in Slovakia in 1980 (Czechoslovakia, at that time). I started doing CG at the age of sixteen, using DOS with 3D Studio R4, learning all about it from help files and books that were available at that time. I currently have ten years worth of computer graphics experience, working on a large variety of projects, from games and architecture to film. I've also studied Computer Science, but after three years I decided to stop and concentrated fully on working in the CG industry, and I've never attended any CG school.

If you had attended a CG school, do you think it would have made a huge difference on your career? Probably not. I starting out doing CG at a time when I didn't have the Internet, just learning and trying, but experience in CG was growing slowly. The good thing about schools is that they can help you to grow faster, giving you answers for your questions and explaining in detail. But it's not what makes you exceptional as a CG artist.



Could you tell us what you are currently doing at the moment? Right now I've moved to Prague to work on a new project.

Could you tell us anything about this new project? I have joined a visual effects company called "ImagesFX", as a Senior CG Artist. I will be working on high profile film and animation projects, together with CG veterans Jan Rybar and Marek Denko.



Creating near perfect visualisations seem to be a key thing in your work. Have you, at any point, thought about creating something completely unrealistic? I've tried doing a couple of abstract images, some sci-fi and fantasy, but I've found that's not exactly my style. Usually I stay closer to reality, trying to imitate daily life and shape the reality to fit my visions. Lately I've done a lot of environments, lighting and rendering, and I think this is the part of CG that I love the most.

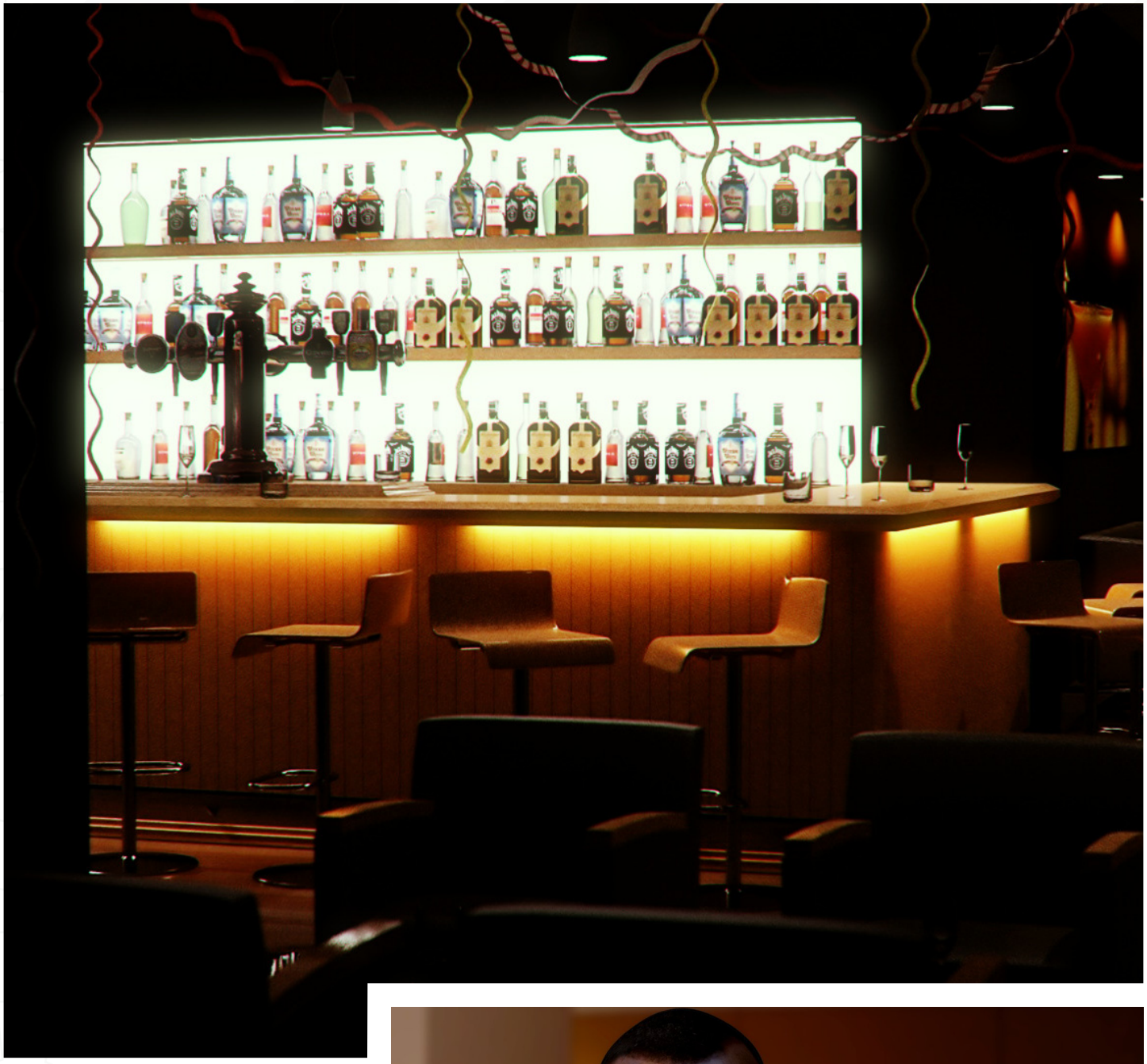
Do you think that your love for these elements of 3D is down to them being the most technical part, or is it down to the fact that these elements can bring a 3D world to life? I think both. You can make a technically realistic looking image, but without having a new idea it wouldn't be so successful. On the other hand, we all see lots of great ideas with bad presentation. I'm trying to be somewhere in the middle, but usually I'm more on the technical part of it.

So what is it about 3D that fascinates you? It's the way that 3D is. After you hit a certain level with your skills, there is nothing that can stop you in making your visions come true. You can make virtually everything.

By the looks of your new show reel, it looks like you have pretty much hit the top of your skill level. But is there any element of 3D that you feel needs improvement? I enjoy everything about CG. I'm always trying to learn as much as possible from all parts equally. This approach can really help artists to deal with all kind of scenes, and you can integrate it better into the production, because you know what is needed of other departments very well. But if you ask for my weak spot, it would have to be character animation.







Each artist, whether 2D or 3D, has looked, or have been inspired by, many different artists, whether past or within the field today. So which artist(s) has given you the most inspiration?

I take a lot of inspiration from real life photography and movies. But I'm also a big fan of sci-fi concepts and speed sketching. Most inspiring for me in CG is 2D Concept Art. Daily, you can see fascinating new ideas, worlds and creatures. It brings fresh air to CG. In 3D, you don't see that so much because people are mostly doing cars, girls and global illuminated teapots. :)





So have you been tempted to do some 2D concept work of your own?

Yes! Actually a have done a couple of them for myself, but I've never showed them to anybody. From time to time I take out my dusty Wacom, that's usually used as a coffee cup holder, but I do it only for my own pleasure and for practice. I tend to leave the serious work to the professional 2D artists...

What other career path do you think you would have chosen if it wasn't 3D?

I wouldn't choose anything else. I was always sure about this, and it was the best choice I think I have ever made. In the future I would like to stay in movies and VFX productions. But the most important part for me, in my CG future, is to not stop growing and advancing in my artistic and technical knowledge. For me, there is only










www.psanitra.com









one way to the top, and that's through training and practice. If you want to be better then the rest, you have to practice more then the rest. It's as simple as that.

Thanks very much for talking to us, and all the very best for the future.

PETER SANITRA

For more work by this artist please visit:

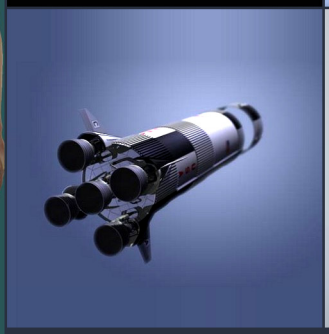
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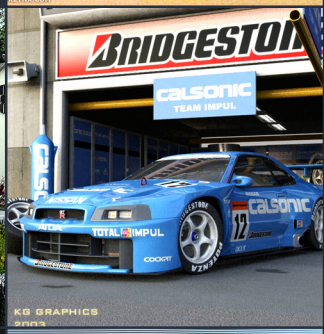



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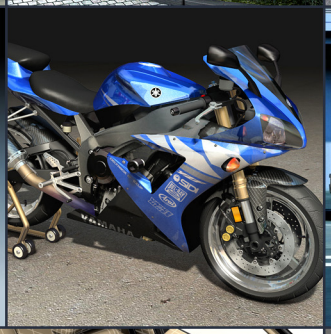
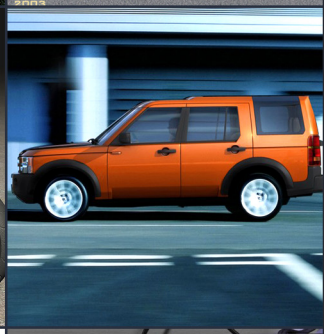
3d02.com. Commonly known as a high quality 3d model store, one of the premier stores of digital assets offering ready to use CG 3d models, and an open platform allowing artists to publish and sell their 3d models online

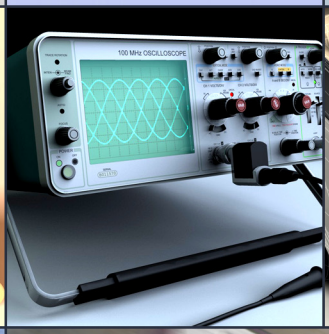




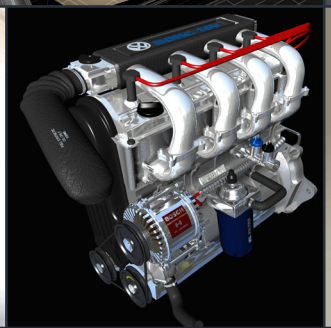












ANDERS LEJCZAK

Ever since the eighties, Anders has been using computers to create artwork, although back then, all he had was a primitive Vectrex console, but now he can create fantastic renders using Cinema4D, with no plug-ins!...

"I WOULDN'T BE ABLE TO DO THE THINGS I DO TODAY IF OTHERS DIDN'T SHARE THEIR KNOWLEDGE WITH ME IN THE FIRST PLACE."

ANDERS LEJCZAK



Hi Anders, thanks for talking to us.

Hi, and thanks for the opportunity to be interviewed!

How did you get started in CG?

I don't know if you remember the Vectrex system? It was a vector based console available on the market during the early eighties. It had a black and white screen and you had to snatch on coloured plastic screens in front of it to be able to see the games in colour. Google for "Vectrex" images and you will see what I mean. Anyway, I got one of these in 1982 from my parents, and I also got a "light pen" with which you could draw up to two hundred - or something - vector lines on the screen. I think I actually managed to draw a Star Wars snowspeeder, and this was probably my first CG type of "art". I wish I could show it to you but the system had one big drawback: you couldn't save your work! Later on I loved to play around with DeLuxe Paint on the different Amiga systems, and in 1995 my dad bought me a Mac copy of Bryce 1.0 (you know the landscape generator) from the U.S. As with many others, I think this program introduced me to the wonderful world of 3D. Some of my renders where actually published in 1995 in the British magazine "MacFormat". It was the first time I had something published, and today I can't believe anybody wasted ink and paper on those renders. In 1996 I had my first real job, after graduating from University, which was as a bank clerk, and my main task was to staple papers and… well that was basically it. During the same time I attended an evening course at



the University in CAD and visualization. I picked it up pretty quickly and one year later I was hired by the University to lead the same course. I remember lecturing being great fun, and making up practical assignments; making up questions for the final exam and then correcting and grading the students was (when almost everybody passed) also great fun.

You have a website which allows users to download or purchase your virtual models. Is it a good way for artists to get their work out there?

Yes I think it is - providing "free stuff" and tutorials attracts a lot of visitors. Tutorials and short "how to's" actually attracts a lot more visitors than free stuff. I wrote a tutorial about how to model, texture and rig an aeroplane and I've noticed that, even if it is now getting a little out of date, it still attracts loads of visitors. A fun detail is that I have a render called "Dirty job" on my site. It is a render of a dirty computer mouse. This particular image is generating huge amounts of traffic from people Googling for "dirty job". I wonder what they are looking for… Strangely, as it may seem, selling a model for a couple of bucks involves less hassle and generates more appreciation compared to when providing it absolutely free. When I was giving away everything for free I was drowning in mails from people not only asking, but demanding all kind of things - some of these mails were also pretty rude. I guess when you give something for free then people assume that your time and





effort is worth nothing. It may appear cynical but I now get a lot more thank you messages from people buying models, compared to when everything was available for free download. I still have lots of material available for free download, because I believe in the idea of sharing as much



as possible. I wouldn't be able to do the things I do today if others didn't share their knowledge with me in the first place.



You have a great talent for final renders (amongst other things) but you don't seem to use any fancy plug-ins. How do you get so much realism from the images?

Thanks. Yes, that's right, I only use Cinema4D with its built in rendering engines. There are others renderers available for Cinema4D, like Final Render 2 and Maxwell renderer. I've player around with the Maxwell demo but haven't been able to generate satisfactory results, not yet anyway. I'm sorry but I have no special tricks up my sleeve. I wish I had. You can get quite interesting results by using a well balanced combination of a standard 3-point lighting setup, and a cartoon-ish look can sometimes be at least as interesting as a photo realistic render. I often see renders created using all kinds of fancy stuff, like HRDI. GI, Ambient Occlusion, etc., but without attention to the balance and detail it makes more damage than good. Lighting a scene is of course only half the work - the rest lies on working with the textures/shaders and the different shader channels available. Tweaking diffusion, specularity, reflection etc., and painting

specific textures for each channel, is at least half of the job.
I post a lot of work-in-progress images in different forums - each forum has a different crowd, and the comments and suggestions I receive therefore span across a lot of issues. In this way I can improve details I never thought of in the first place, and improve settings I thought I had done my best with. I use some post production tricks and have created a couple of actions scripts for Photoshop. This is however nothing fancier than channel mixer settings and adjustments of saturation and colour balance.



Apart from the site, what else do you do to make a living from CG?

I work as a Project Manager and Consultant at one of Europe's leading digital agencies, and in my present position I have mostly worked with clients within the automotive industry. I'm currently working with a major visualization project for Volvo Cars Corporation (VCC) but unfortunately I cannot reveal any juicy details about this until it has been launched. There is of course a lot of CG involved, but my part is 'just' a Project Manager's role, and unfortunately I'm not very involved in the creative or the CG technical parts. You will have to come back to me at a later point





in time once
it is launched,
and hopefully I will
be allowed to tell you
more about it - it is a very
interesting project both from a
CG and technical perspective.
Working for a global
corporation - like VCC - has
of course both its ups and
downs. The scope of the
projects and the creative
heights is usually very high and I've had
assignments around the globe; everything
from Amsterdam (Holland) to Sao Paulo
(Brazil) and Kuala Lumpur (Malaysia).
Lately however my most frequent trip is just



a 3-hour drive between Malmoe (where I live and where our home office is) and Gothenburg (where VCC has their headquarters) – not as exciting as taking a flight to Asia during the SARS disease breakout some time ago though. At the same time, working for such a corporation can be a tad frustrating. The production pipeline requires much more administrative effort compared with when working with a smaller company. As you may know, VCC is owned by a US based Ford Motor Company (FMC). The requirements on processes and control are now - after the Enron scandal - much more strict, which has had its affect all the way down to my projects. Read a couple of Dilbert cartoons and you will understand what I mean. Maybe this is why I am also a big fan of office - and cubicle - humour. Working hands on with CG is, for me, so far just a hobby, but I'm looking for an opportunity to change that. I would like to work less with project management and more with hands on CG production. Personally I have had great use of my hobby in my day job, but also the other way around - the things I have learned via my hobby has proven to be very beneficial in my day job, and the processes used at work have been useful when working with my personal projects. Don't worry, I'm not going to bore you with an essay about "waterfall methodology contra iterative development processes", and other project management mumbo jumbo.

You wanted to become an architect? Do you think it's a route you will ever try with CG?

Yes that's right, but it didn't turn out that way. Well, the truth is that my grades weren't good enough when applying for the Architect program at University, but I was accepted on the Computer Science and Business Administration programs. I still have a general interest in architecture and in topics related to designing indoor or outdoor spaces. Helping somebody with visualizing possible ideas is something I hope I will still have the opportunity to do.

Just about every artist has a dream project - what's yours?

This is really a tough one. On the one hand, I would like to work on a major sci-fi flick at one of the big players like ILM, but on the other hand I would like to live in a house on the beach in a warm country like Thailand and make a living from taking on commissions once in a while, without lying sleepless at night worrying about tight deadlines. I don't know which one of these scenarios is most likely to occur. OK, seriously, the important thing for me is to try to shift my current focus on technology and processes to more dynamic and creative projects.

What one piece of advice would you give to a beginner in 3D?

I would encourage people to do two things, the first thing being to try to model your own models from scratch. I know not everybody is interested in this, but give it a try and after some initial frustration a whole new world will open. Go through every tutorial you can find, even if it covers a subject you think you already think you know. Different authors can solve the same problem in different ways, and knowing the alternatives will come in really handy in the long run. Begin with subjects that are meaningful: modelling a character or a car is maybe not the best subject to begin with and you will probably only get frustrated without having learned anything. Personally, I would also suggest that you try to learn how light and the shaders work before attempting a complex model. A scene with a simple object can be beautiful if lit in a proper (or interesting) way. Post work-in-progress images and be active in different user forums. Don't just hang around in a familiar forum where everybody knows you and where you are used to getting nice and friendly comments. When ready, post your images in other forums and ask for constructive criticism. The comments can sometimes be harsh, but as long as it is fair it will make you grow. If you have any special interest, like for example architectural visualizations or aeroplanes, then join a community that specializes in this subject and where the rivet counters hang out. Comments will be even more nit-picky in such a forum but you will learn a lot. The second thing I would encourage is sharing. Share as much as possible of your own material. I wouldn't be able to do the things I do today if others didn't share their knowledge in the first place.



Thanks very much for talking to us. Good luck for the future. Thanks a lot!

ANDERS LEJCZAK

For more work by this artist please visit: www.colacola.se Or contact them at anders.lejczak@colacola.se

Interviewed by: Ben Barnes



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Image courtesy of Olivier Derouetteau, http://olive2d.free.fr

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Christoph Bader

Marvelled by the aesthetics of machines, and drawn by the simplicity of a simple shape, artist Christoph Bader takes time away from doing his civilian national service to talk to us about his straight-to-computer approach to his work, and his fondness for humanizing machines...



"MY WORK POPS UP JUST LIKE A STIMULUS THROUGH A MUSCLE. IT'S LIKE A PULSE WHICH EMERGES IN MY BRAIN GOES STRAIGHT THROUGH MY RIGHT ARM AND THEN ONTO THE SCREEN."

Christoph Bader



Hello, could you introduce yourself to us and give us a bit of info about your background in 3D? Hello, my name is Christoph Bader and people consider me to be 3D Artist. I'm currently living in Germany and I'm doing my alternative service here which is a civilian national service that you can do instead of going to the army, where I'm doing a community service in a rehabilitation centre. Besides this, I'm also quite interested in music (passive), sport (active) and machines of all kind, but it's more from an aesthetic point of view, rather than how they actually work. I'm also doing some web design, logos, flyers and a lot other stuff. People may know me best on the deviantart website as "d0rn", which comes from the German word that means "Thorne", which refers, somehow, to my personality.

Could you explain a bit about why you prefer the aesthetic side to machinery rather than how they actually work? I think that science and technology are driven by beauty somehow, and on the other hand I just like the shapes and forms of old engines and stuff. People can't create something just because of it's functionality, there always remains beauty in the machines we create. When people see a "machine" they can always feel it's character - it's "soul" - and that's somehow what makes it beautiful and interesting.

You have adapted a very unique style to your work, could you tell us a little about it?
I wouldn't describe my style as unique at all and I'm not trying to be "unique". I'm just doing what fits my skills and the way I work so I can enjoy what I do. Every time I start something new, there's an ambition to reach a higher level, as I'm not very fond of doing a picture the complete same way again, just because it'll look good. I compare my style to some kind of abstract architecture and construction, because some shapes of the more abstract pictures are reminiscent to me of modern buildings and so on.

Some of your sculpture images are very complex and involve many shapes. Do you do any preliminary drawings before you model, or do you just start and see what happens?
No, my ideas go straight from my brain through my arm, to my hand and then onto the screen. Sometimes an idea is just created while modelling something senseless. I know many people need to visualize their ideas first, via pen and paper, but that has never been the case for me. I think this method works very well for me as the program is my paper and the mouse is my pen.

With not having any sketch references to your work, how long on average would you spend on an image?

While designing and modelling, time just flies away. So I can't really tell. There's some kind of meditative feeling to it and if there's no deadlines and modelling is enjoyable, then the whole process can take an infinity. On the other hand, that doesn't mean that the image will look good. But something that is fact is that 3D abstracts don't take as much time and effort as robots or other 'real' objects do. But abstract pieces are somehow way more fun.

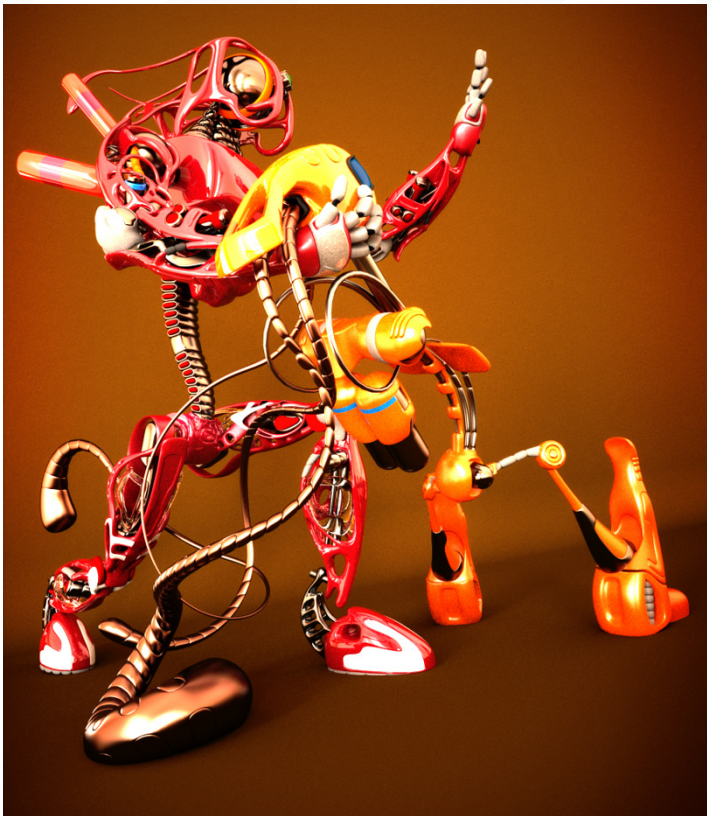
Bright colours play an integral part in each of your images. Is this used to symbolise anything or just to make them stand out?

Personally I hate bright colours. Colour contrasts create a feeling of tensions. This contrast not only exists between the colours alone, there's also a contrast between the lively colours and the "dead" object - take a robot for example. So, I try to give vitality to everything, but on the other hand I try to create this agitation via contrasts.

What things inspire you when you start on a new piece of work?

There's nothing that inspires me that I could give a name to. My work pops up just like a stimulus through a muscle. It's like a pulse which emerges in my brain, goes straight through my right arm and then onto the screen.



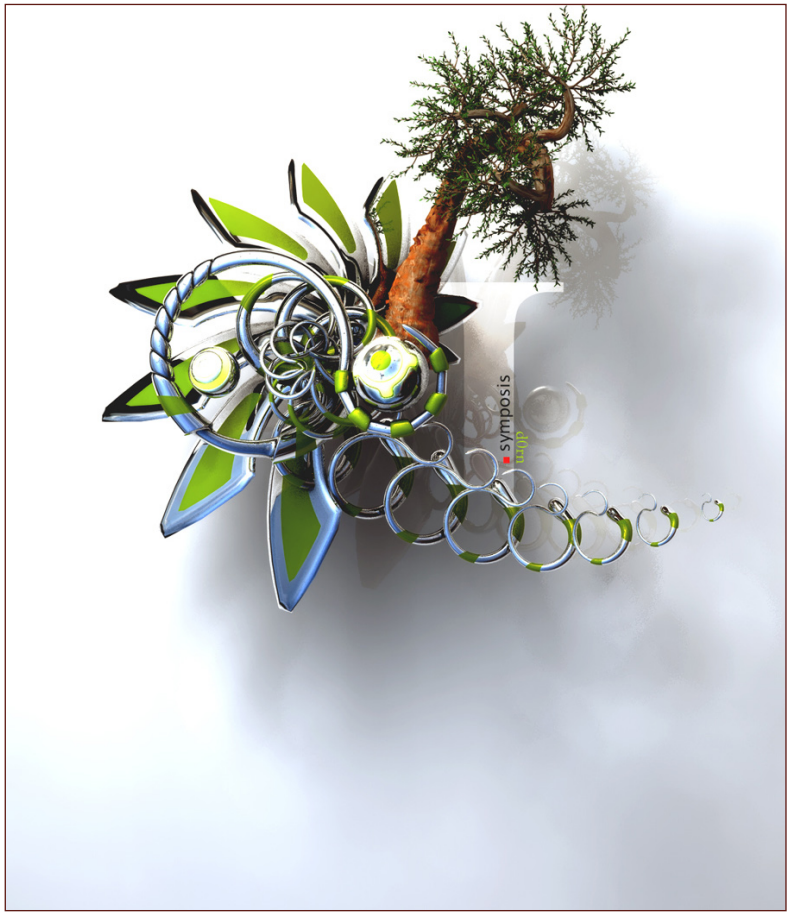


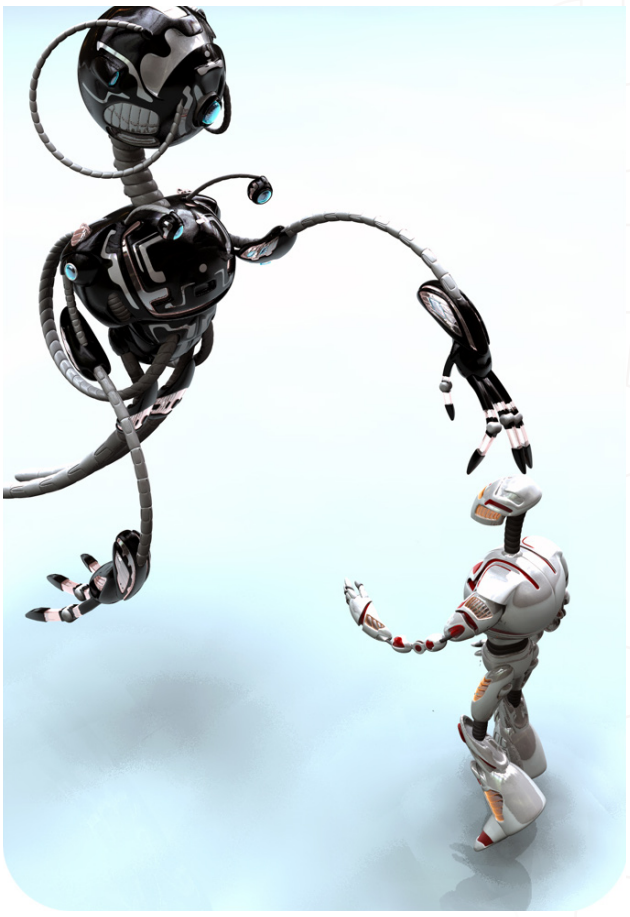
Then, suddenly, there's this simple shape that appeals to you. So I can't tell where the shapes' forms and the colours come from, it's just like a force that pulls me to do something that suddenly appeals to me, or sometimes not. Of course there are images that you can see from really talented artists, which somehow stick in your head, but it's not like "oh look what crazy stuff this or that guy did, I need to go the same way". What inspires me the most is that simple shape I start with, and then I try to do "more". This is when the brain comes in, trying to create similar shapes and forms - familiar to machines and buildings of all kind.





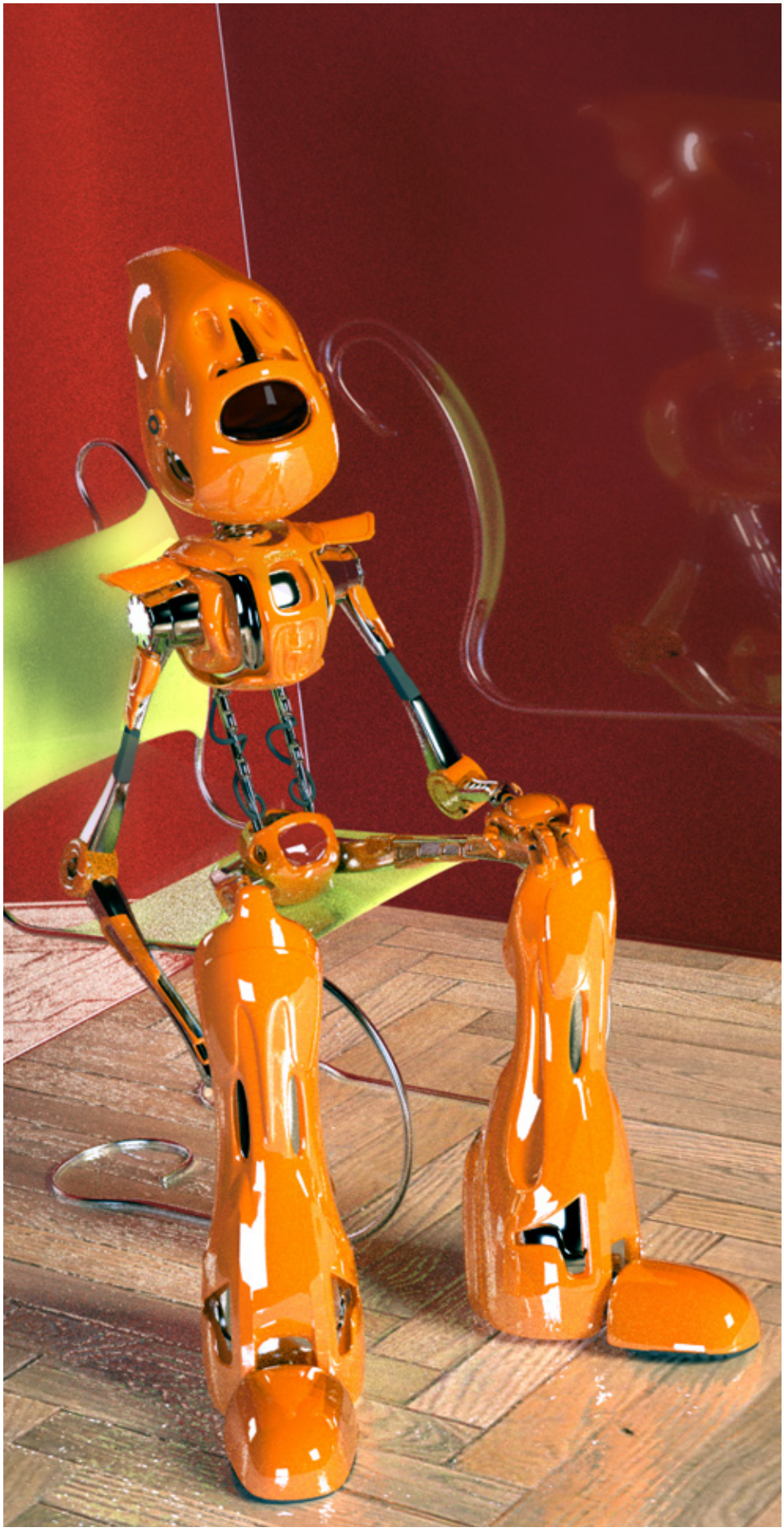



symposis





So, has a mood that you've been in ever reflected itself within your work? Mostly I'm not a very positive person. For me, the world is either grey or black. But the pictures I make are, in the majority of cases, very colourful and vivid. So I have never had a mood that has been reflected within a picture, robot, model or anything that I've done. You know, it's just the same with clowns who want to make people laugh but are more often than not very sad. So it could be the same with me, but instead of making people laugh I want something else, well, maybe...



With a fascination into machinery, why is it that you have chosen to model robots over other mechanical objects?

I'm modelling other things too, but I've never thought they were worth being rendered. Why robots? Actually I never thought about it. Maybe because a robot is not a static object. You can give a robot a human touch to express something people wouldn't normally expect from a machine. Maybe that's what makes them interesting?

You mentioned you like modelling robots on the basis of making them more humanized. If you had a choice of modelling another piece of machinery what would it be?

Besides abstract machines, which I really like to do, I would model some kind of vehicle, because there is a very strong emotional connection between humans and their vehicles - cars for example. So it would be interesting giving a vehicle a certain character through its design, not forgetting about the challenge which one has to meet when it comes to the complexity



and usability of a vehicle. Every machine could have some kind of character, as mentioned, so every machine is interesting in its own way, thus the modelling and designing process will always remain interesting when it comes to machines.

Well it has been a pleasure talking with you. One last question before we finish. If you have one bit of advice you could give to any aspiring 3D Artists, what would it be?

It has been a pleasure answering your questions! Only one piece of advice? Hmm, just start work now and don't try to think to much about anything, and take your time.





Thanks very much for talking to us, best of luck for the future!

CHRISTOPH BADER

For more work by this artist please visit:

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America's Next Top Model, Adrianne Curry, gets

digitally cloned

NVIDIA Professional Graphics and Softimage XSI Help Breathe Life into Digital Actors

digitally cloned



In a move that is sure to send waves through Hollywood, model and television celebrity, Adrianne Curry, and NVIDIA, the worldwide leader in programmable graphics processor technology, have teamed up to create the world's first real-time virtual 3D celebrity. This breakthrough, which was created using Softimage XSI and NVIDIA professional graphics solutions, opens the door for 'stars' to create and license detailed replicas of their likeness without ever having to make a physical appearance or take a photograph. Virtual celebrity licensing will have a multitude of applications, including adapting celebrity characters into newly developed video games, virtual modelling and endorsements, digital appearances in film and television, and virtual



hosting on websites or traditional broadcasting media. "I am honored to have been selected as the first celebrity for this project," says Adrianne Curry. "The Digital Adrianne is so realistic, it's really trippy. Lara Croft, eat my shorts!" Adrianne Curry is the ideal choice for this venture as she is on the cutting-edge of this fresh, new trend in Hollywood. In addition to her successful modelling career, which has landed her on the pages of Maxim, Playboy, Sync and Marie-Claire magazines, to name a few, Adrianne is a bonafide television star with television credits that include some of the most successful reality TV shows, including the CW's America's Next Top Model, VH1's hit series, "The Surreal Life," and "My Fair Brady," amongst numerous other stints in television and film. Adrianne also runs one of the most popular blogs and online promotions in the industry. "The uses for this technological breakthrough

are truly endless," said Dan Vivoli, senior vice president of marketing at NVIDIA. "The digital Adrianne can demonstrate the same range of emotions, movements, and attitudes and appear just as life-like as her living, breathing counterpart. It is simply a stunning transformation." 3DCreative spoke to Mark Daly from NVidia creative services...



What are the main benefits of this process?

The process of creating "Virtual Adrianne" allowed us to leverage the creativity of both our art and engineering staff. Our art staff used standard third party tools like Audodesk Maya, Pixologic ZBrush, Adobe Photoshop, and Softimage Face Robot to produce the basic art assets (models, textures, animations). Maya is the keystone of this development as all of the hooks for exporting these assets to our real-time engine come through our own custom Maya exporter. Our engineering staff focused on developing real-time methods to mimic the features inherent in these non-real-time tools. These included all the skeletal animation that allowed Adrianne to walk and pose, and blend shape interpolation for her facial animation. We also added support for sculpt deformers to reduce the "pinching" effect that often happens in the joints of a skinned animation. A large portion of the engineering effort went into the development of real-time shaders for Adrianne's skin and hair. Both of these shaders model the interaction of light as it bounces off the multiple sub-surface layers of the skin and hair.

What made Adrianne a perfect choice for this first attempt at the project?

First and foremost, she was willing to do it. She was a very good sport about working with us. We put her through a virtual "probing" by making her sit for head scans, applied photosensitive dots to her face to capture facial animation, and asked her to pose for reference photographs that are closer to police mug shots than glamour photos. I'm certain that it was much less glamorous than the modelling sessions she's accustomed to. She was very cooperative and great to work with.



What are the biggest problems when trying to digitize human models?

The single, biggest problem is making them look alive. With today's tools we can do an excellent job at making a single still image look like a real person. The problems all come in when you try to make it move. Our human perception is an expert at catching every little nuance of movement. If it's not perfect, we pick up on it immediately. So, you have to design your model for movement. This includes establishing a good mesh topology for the face (see face facts below). It also includes the creation of restorative blend shapes and sculpt deformers to keep joints like elbows, knees, wrists and shoulders from pinching and collapsing as the body moves. Just solving the movement so that it doesn't look wrong isn't enough. If you're trying to duplicate a real human, you have the additional challenge of making his/her movements look like the movements of the real person. Today's technology can do a reasonable job of this for body movements, but the facial animations are still a challenge.



What does the future hold for this technology?

Future technologies need to focus on facial animation. We have a reasonable start with tools like Softimage's Face Robot, but there's still a long way to go. I've seen some new tools that try to do facial animation from image processing of video footage. It looks promising, but it's still a very labour intensive process to get it right.

Do you think that you can retain enough realism from the character, so as not to end up with a lifeless model?

That is the crux of the problem. With the "Virtual Adrianne" project we bumped into it constantly. As I mentioned above, it's all in the facial and body movements. In Adrianne's case, she is a highly emotive person. All of the fun of her personality comes out as her face lights up with great big smiles sporting multiple layers of dimples. She is also very playful, and likes to stick her tongue out at you quite often. With our current set of tools we were only able to produce a couple of sets of her dimples, and we had to ask her to keep her tongue in its place for the facial capture session. This resulted in a little more serious version for our "Virtual Adrianne". Next time we'll have to take on her playfulness.



MARK DALY
NVIDIA Creative Services
www.nvidia.com

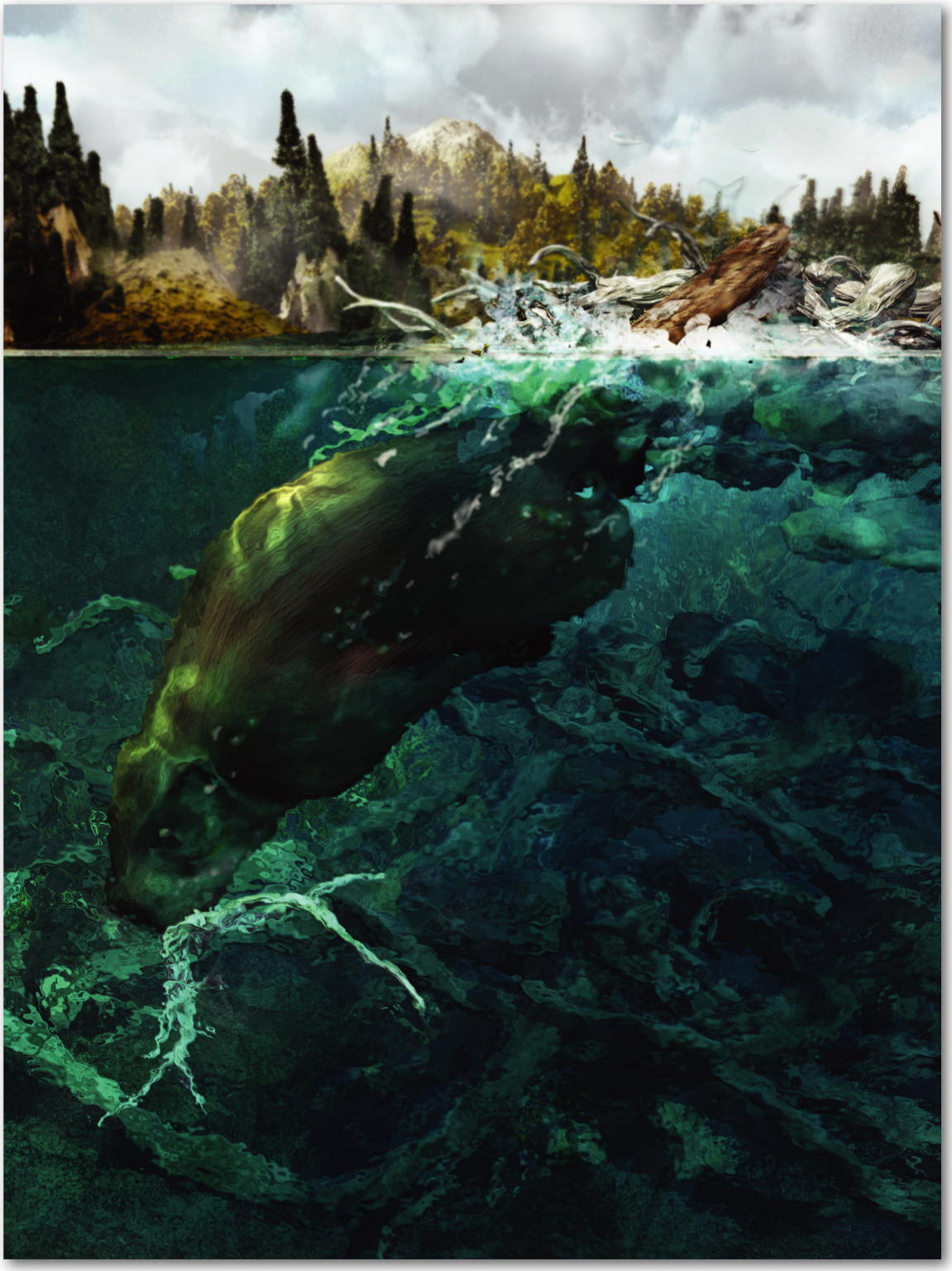
For more details on the creation of digital Adrianne Curry, please contact:

NVIDIA Corporation
KELLY DOVE
kdove@nvidia.com

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Dive into 3D!

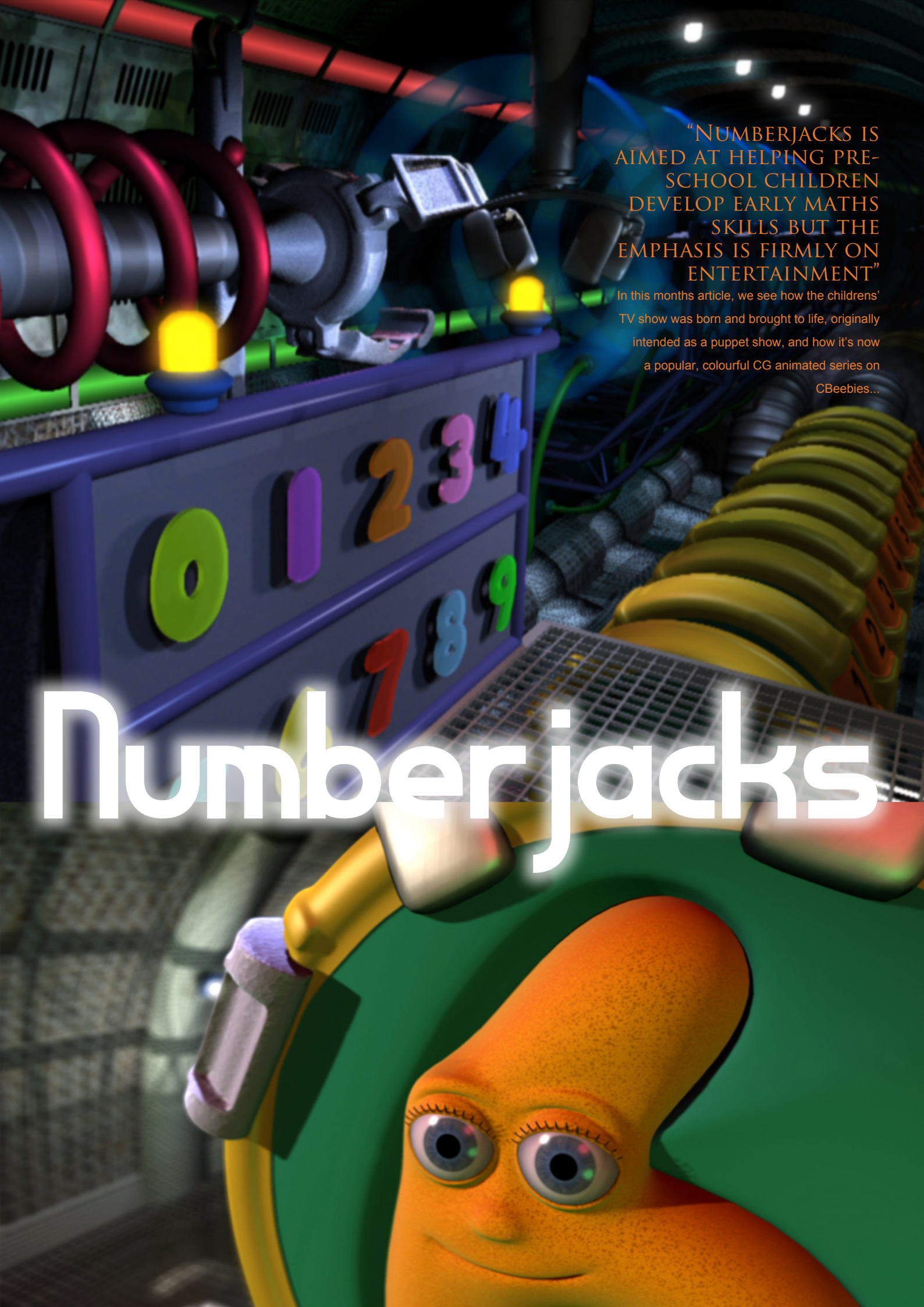


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Numberjacks

"Numberjacks is aimed at helping pre-school children develop early maths skills but the emphasis is firmly on entertainment"

In this months article, we see how the childrens' TV show was born and brought to life, originally intended as a puppet show, and how it's now a popular, colourful CG animated series on CBeebies...

Numberjacks

THE NUMBERJACKS

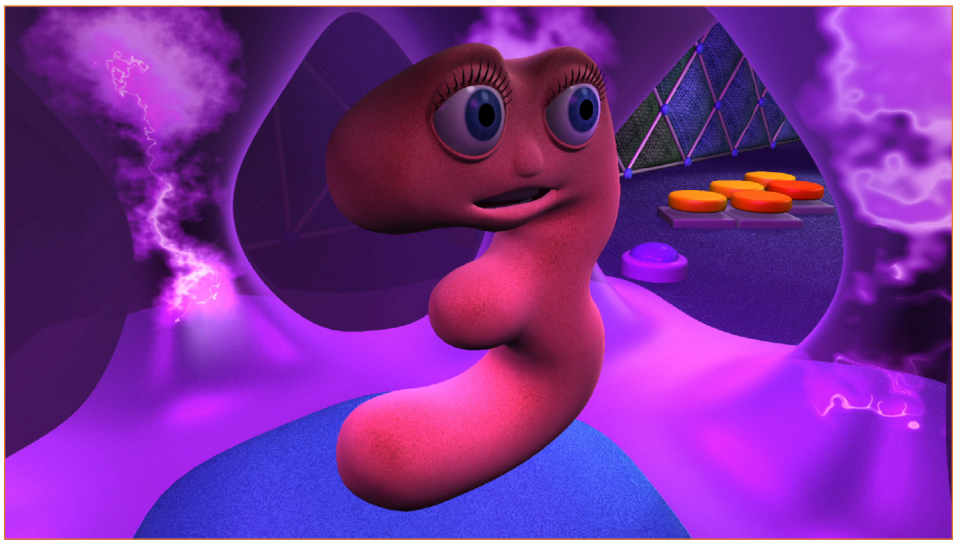
Numberjacks is a new childrens' series designed and animated by Plastic Milk for the BAFTA award-winning 'OpenMind Productions'. The Numberjacks are superhero numbers whose hi-tech base is concealed in a sofa in an ordinary house. They have a team of children acting as their agents in the outside world who call them into action to investigate problems and combat the mischievous antics of villains, such as the "Puzzler", "Spooky Spoon" and the "Numbertaker". Numberjacks is aimed at helping pre-school children develop early maths skills but the emphasis is firmly on entertainment - the show is packed with comedy, adventure, quirky songs and fun gadgets. There are 45 fifteen-minute episodes which combine computer generated animation for the base and characters, with the live-action agents and 'outside world' environments.

SCREENING DETAILS

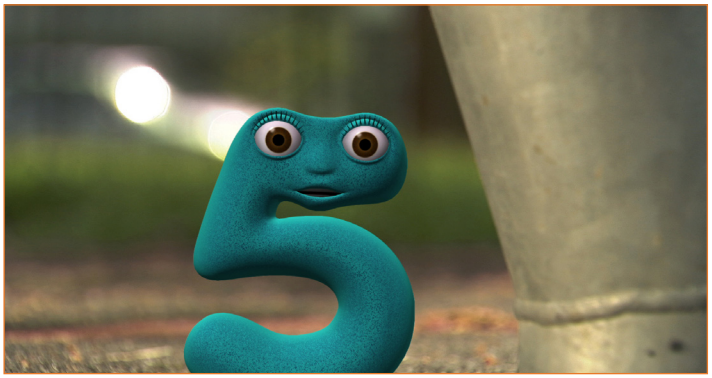
The full series of the Numberjacks began on BBC2, 9.40am, on Monday 1st January 2007, with a further screening at 5.15am on CBeebies. At the moment the series is running at weekends on Cbeebies. It returns to these slots from 19th February.

DESIGN AND ANIMATION

Numberjacks was originally commissioned as a puppet show, but when Open Mind asked David Raitt to help with the character design, he came back with a talking CG number and the BBC bought the idea. A small in-house team, worked closely with the live action directors on the visualisation and storyboarding, while the animators on the series worked remotely. To make this possible, a web-based, digital asset management system was custom built by Edition Interactive (www.editioninteractive.co.uk).











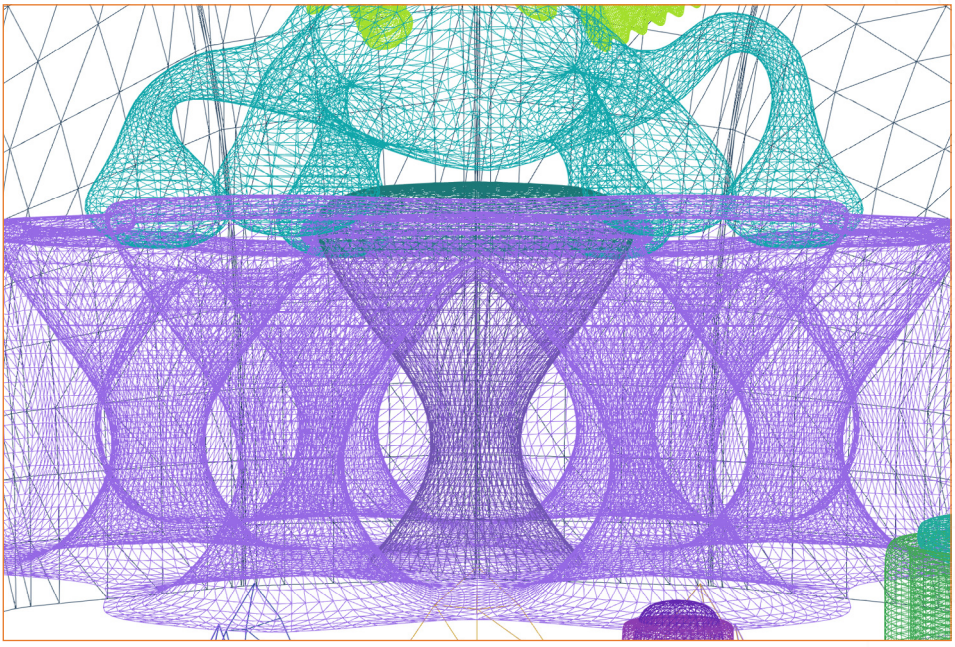


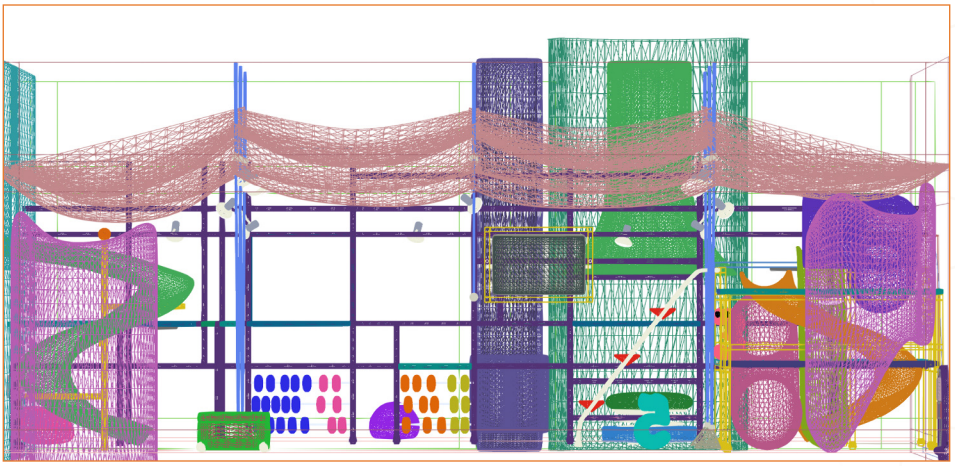


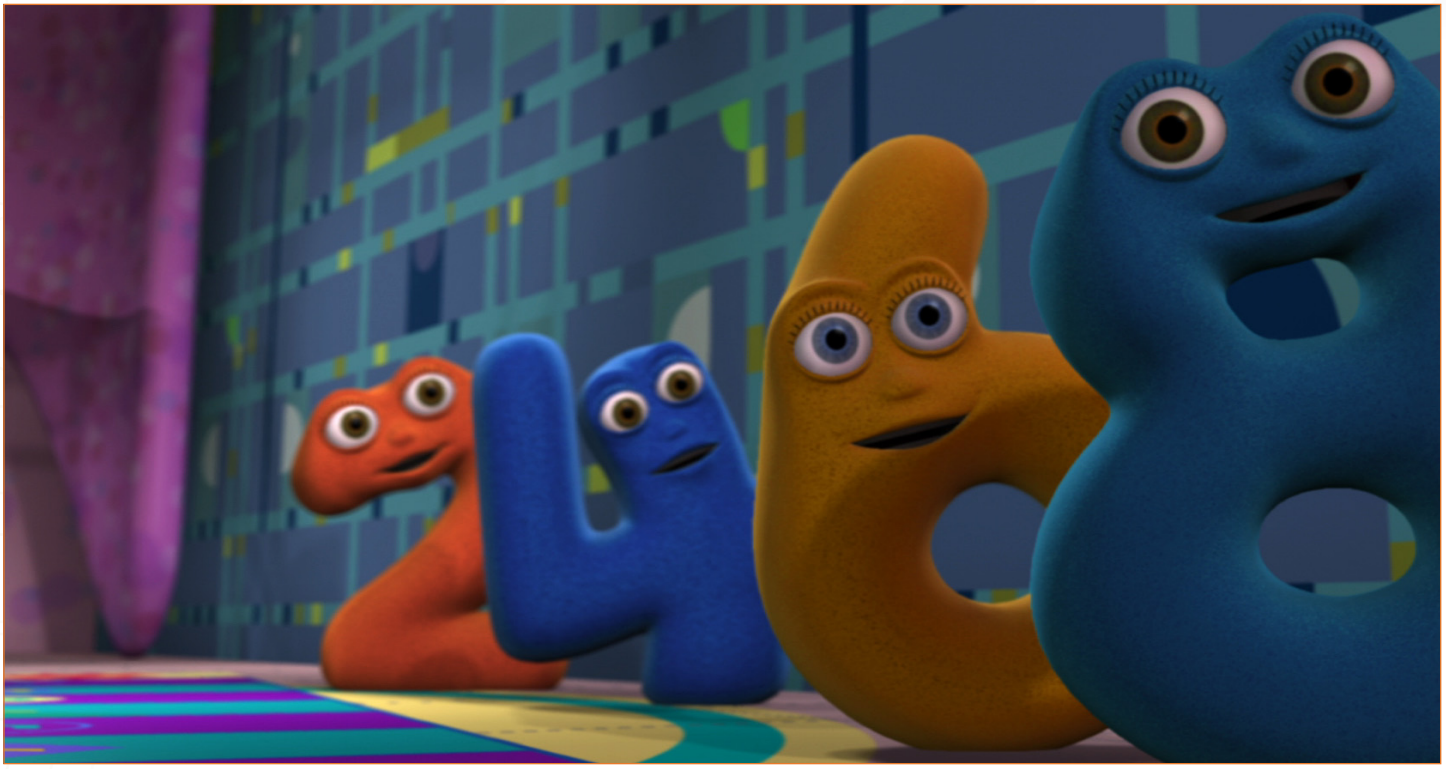


Creating Numberjacks

The CG elements were produced using Newtek's LightWave3D software. Animating, rendering and compositing 6 hours of animation at HD resolution is a daunting task. On the budget for this series, it posed considerable technical challenges. Everything was rendered and composited in-house on a handful of G5s. For the CG environments every second of render time had to be accounted for, anything which didn't make a noticeable difference to the image quality was ruled out. Often we had to find different ways of getting the same visual results but with lower render times. The core team of Lightwave artists needed to be very flexible. We often found ourselves doing a wide variety of jobs that would normally be done by different people. We were pushed into areas we were not used to working in, this helped keep us on our toes during the project. Scripting as many routine tasks as possible ensured that the computers did a lot of the donkey work, leaving the artists to spend as much time as possible on the things which would drive up the quality of the programmes. Our first contact with the Numberjacks was at the end of last year. Open Mind Productions asked us to help design some characters for a puppet show they had been commissioned to produce for the



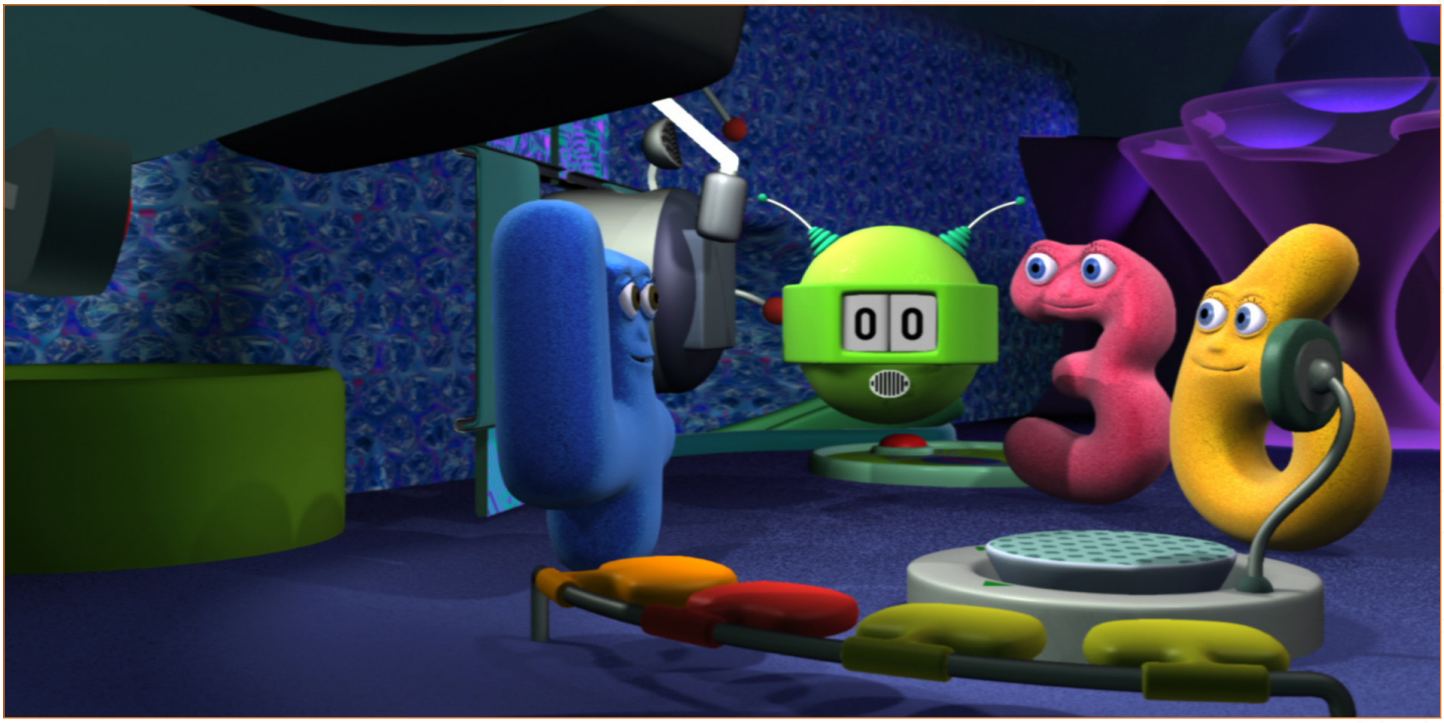




BBC. The characters had to be in the shape of numbers, they were to be hand operated and would have static eyes. We made up some simple 3D models of what the characters could look like. This should have been the end of our involvement in the project, but with the models sitting on the computer and a bit of spare time it seemed crazy not to have a go at animating them. We recorded some improvised dialogue and rigged one of the characters with a simple spine. The animation was really basic but it gave the model a lot of character. Open Mind had been looking at tracking software and wanted to know if we could use it to combine the animated character with live action footage. They supplied us with some footage and we ran a trial. The result convinced the BBC to re-commission the show as a CG production. We were now faced with the daunting task of working-out how to generate 6 hours of animation. Neither of us had ever worked on anything approaching this scale before. Open Mind were aware of this and they put a huge amount of faith in us. There was no way the converted garage we lovingly call a “studio” was going to be able to cope with the number of animators needed to work on the series, so we decided to employ



animators remotely. We wrote up a specification for a web-based asset management system and Open Mind commissioned Edition Interactive to build it. Getting the fine details worked out was a real headache but the result was invaluable. Trying to deal with thousands of shots coming in from animators spread all over the country could have turned into a disaster. As we started to draw up a plan for the production pipeline, it became increasingly obvious that there were going to be a lot of very boring repetitive tasks to be done. It also became obvious that we weren’t going to have the time to do them. At this point a third person joined our team with a background in web-based scripting, he set about teaching himself Applescript with a view to automating as much of the pipeline as possible. In the meantime one of us worked on modelling and rigging the characters, creating stock animation and finalising the production pipeline, whilst the other concentrated on building, surfacing and lighting the 3D environments. Finding the right character animators was a real challenge. Having not worked on a big 3D production before we lacked the right contacts. We advertised on Internet animation networks



and gradually collected a team with the right blend of skills and experience to tackle the project. We have been using Lightwave for years because it is well suited to the small scale projects we were accustomed to. We had read that some of the more expensive 3D packages offered better workflow, but with such a short lead time, it would have been impossible to learn a new 3D package. We are proud of the production values we have been able to achieve on the budget available and we hope that children will enjoy the series and gain educational value from it. One year on from our first involvement with the project, we have almost completed the 45 episode series of Numberjacks, and the first batch of programmes have been shown on BBC2 and CBeeBies. By the third week of CbeeBies' screenings, Numberjacks was the most viewed programme on the channel for that week.



About Plastic Milk

We are a group of designers/animators with multidisciplinary skills, who tackle a wide range of projects from 3D animation for broadcast television to the design and construction of websites. We specialise in finding interesting, innovative and effective ways of communicating ideas and information. The audience could be anyone from 4 year-old children to postgraduate scientists, and the format could be anything from documentaries to game shows. We produce intelligent design that informs and entertains.



Numberjacks For more information please call David Raitt on: +44 (0)20 8941 6652 Or contact: david@plasticmilk.co.uk
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Next Generation Games

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The seventh generation is the era in the history of computer and video games that began on November 21, 2004, with the release of the Nintendo DS. The console portion of the generation began with the release of Microsoft's XBOX 360 on November 22, 2005, and continued a year later with the releases of Sony's PlayStation 3 on November 17, 2006, and Nintendo's Wii on November 19, 2006 in North America. Having only just formally begun, a dominating console of the seventh generation has yet to be seen...

BLITZ GAMES

Next Generation Games



The XBOX 360 by Microsoft has gained a much larger share of attention than it had previously, thanks to it having been on the market for about a year before its competitors' launches. Whilst sales figures in North America and Europe have been healthy, the system has struggled in Japan due to a lack of RPGs and the poor reception of some Japanese developed games, such as 'Ninety-Nine Nights' and 'Every Party'. However, sales have increased in the region recently, due to the release of the highly anticipated 'Blue Dragon'. It is more difficult to assess whether Sony's PlayStation franchise will be successful in this generation. It has a comparatively higher price. The PlayStation 3 has been released roughly a year after its primary competitor,







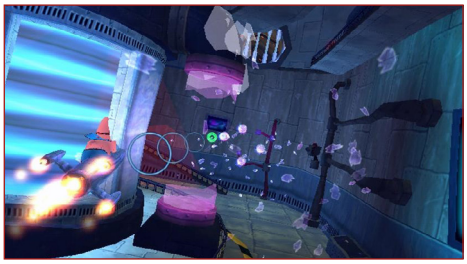


the XBOX 360, and reliance on very new technology, such as the Cell microprocessor and Blu-ray format, may disrupt Sony's dominance of the console market. Nonetheless, despite many initial setbacks, Sony demonstrated the capabilities of the PlayStation 3 at the Tokyo Game Show 2006, with 27 playable demos and numerous titles ready for launch. It will ultimately be decided by whether or not players feel that the games are worth the higher price of the console. Nintendo also entered this generation with a new business plan with its Wii console. The plan is firstly to capture a new market of "non-gamers" (and lapsed gamers) through new game play experiences and new forms of interaction with games. If the new market grows sufficiently large, Nintendo hopes that the new control aspect will render current conventionally controlled consoles obsolete, leading to Nintendo capturing a large portion of the existing market as well. We interviewed some of the world's biggest and best next-gen games studios to find out what they are making of the next generation of gaming, and how they are coping with the new technology. This month we talked to Aaron Allport, Creative Manager and Steve Thompson, Art Direction Manager of Blitz Games...

Hi, thanks for taking the time to talk to us. How have the new generation consoles changed the approach to game design? Initially, there hasn't been a major change in game design triggered by the new generation of consoles. We'd say the major focus of the technology leap is on graphics at the moment, which is usually the case at this stage in the life cycle of each hardware generation. We have a few additional strings to our bow - for example, the ability to drive swarms of enemies is certainly exciting for certain games, but it's not really a paradigm shift in itself. The downloadable games market has the greatest chance of shaking things up for the immediate future, offering the opportunity to make novel, original games unencumbered by enormous budgets and marketing focus groups that can have a pathological fear/hatred of new ideas. As far as the major boxed products go, it'll get moving again soon. Usually the latter half of each hardware cycle sees game design, as a form, move forward a little. By that stage the developers are more experienced with their new toys, publishers are less nervous about the changing market, and gamers themselves are looking for something new.



















What differences in studio/team-size/budget/development time, does next generation game development bring? They've got bigger and more expensive in all aspects. The new consoles have meant that a greater degree of detail can be added to elements, which obviously takes longer to produce. Just by having outputs rendered for high definition means that the actual details in the textures and models need to be greater, as the player can see the characters' every wrinkle and crease. We also have greater flexibility when it comes to the amount of assets that can now be shown on screen, again this would mean that it takes longer to produce these elements. Also, pushing the first raft of next gen games is obviously more expensive (more manpower, more time), as there are lots of pre-production tests and processes to work out. But once a pipeline has

been created and proven in a game, the cost and time is lowered. For example, creating a believable, high quality, next gen character has so many elements to 'get right', that it needs a high proportion of manpower to be assigned to get the desired results. But once these have been initially created, it's much easier to reproduce that quality for further characters. Another example is taking new design features into account, with 'Spongebob Squarepants: The Creature from the Krusty Krab', we had to allow design time with the new Wii controller. We needed time to figure out and understand how the character would realistically look and what we could actually get out of the new Wii controller. So, the initial titles will tend to be more expensive, with subsequent ones reducing in cost as processes are better defined.





How much more freedom has been awarded to the artists in terms of texture memory and poly-counts? As far as texture memory is concerned, we have increased in two directions: we can justify a higher resolution in texture, but also have more control over surface properties via multiple texture layers. For example, where we used to have one texture for a character head, we can now control specular colour, specular intensity, subsurface scattering depth, ambient light and occlusion, as well as simulating high resolution normal data and many other surface effects via multiple texture stages. For our latest Wii title - 'Spongebob Squarepants: The Creature from the Krusty Krab' - we were able to go back and rework texture sets to improve visual quality throughout the game, compare this with the PS2 and Gamecube versions and the impact is obvious. Polygon limits have also increased dramatically; we now have the processing power to render much larger volumes of geometry. In contrast to this however, we now have to work smarter than ever before. Super-efficient modelling, tri-stripping, independent texture resolutions and smart use of texture compression are just some of the hurdles still facing developers, only now we have more assets to deliver.













In what areas do you feel there have been major advances made over the XBOX and PS2? Moving to a HD display is probably one of the greatest advances over last gen consoles - it's now possible to get crisper, cleaner and more defined visuals. Obviously more polygons are at an artist's disposal, but it's the advancements in pixel shaders that really make the new consoles shine. Rudimentary shaders were available on the XBOX, but these were fairly primitive compared to what the advanced pixel shaders are capable of on today's machines. Visually, in the next few years we're expecting to see some masterpiece games, that I'm sure will rival current pre-rendered scenes for visual finesse.

Which consoles will you be supporting PS3/ Wii/XBOX 360? We support all three of the next generation consoles, our proprietary 'Blitzware' technology provides true cross-platform development including world editing, shader development, asset management, real-time physics and much more. We also have custom toolsets for artists to use within Maya and MotionBuilder - our primary 3D and animation software. We have developed three XBOX 360 live arcade titles this year for Burger King; they're called "Sneak King", "Pocket Bike Racer" and "Big Bumpin". We've also created the launch title for the Wii console - 'Spongebob Squarepants: The Creature from the Krusty Krab'. We're also currently working on several other XBOX 360 and PS3 games.

There are many that maintain the argument that current consoles continually improve the graphical appearance of games, but do not necessarily develop better game play. What is your stance on this? I would agree with this argument - but only to a point. There are many reasons why the "graphics are king" attitude continues to manifest itself, especially in the first few rounds of releases for any new console. Partly it's due to the fact that games marketing & publishing generally continues to be driven from a visual standpoint. Better-looking games garner more coverage and are more likely to be signed than average looking ones. Also, when developers start working on new hardware, it's a far safer business model to use a proven game design and invest in updating the graphics whilst learning the new hardware. In an ideal world, the visual quality and style should fully compliment the game design to enhance the overall experience. Traditionally game designs become more creative as consoles age. The installed user base grows and the graphical 'playing field' of the developers becomes more even, thereby forcing the quality to shift away from graphics towards game design. Companies with the time, money and creative vision to get both aspects right will always make the best games, irrespective of release date and platform.







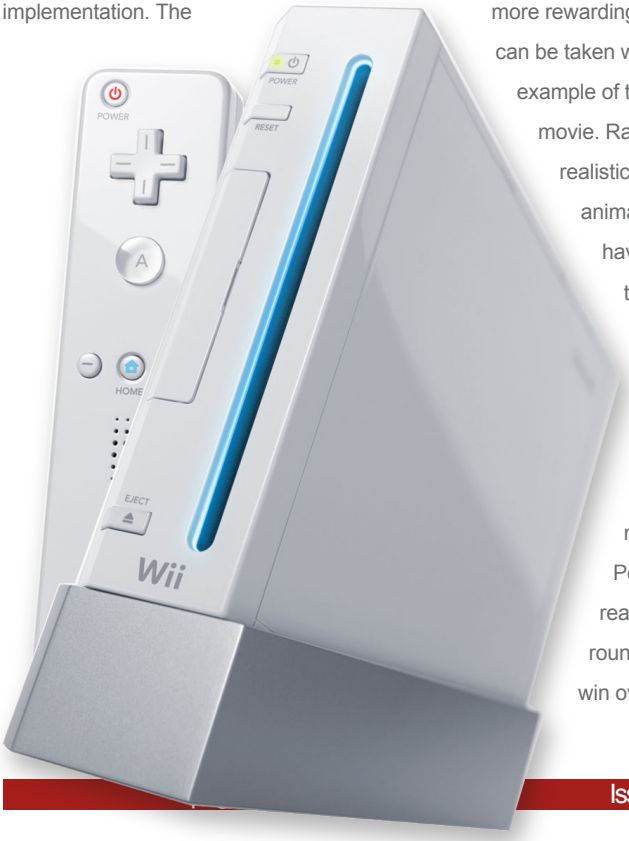






Many games seem to be striving towards more and more realism in terms of texturing and lighting, for example, as well as more convincing character models. Do you feel this is something consumers seem hungry for, and what do you see are the pitfalls inherent in this approach?

Realism is something that a lot of developers are striving for at the moment, and this is fine up to a point, but adopting a hyper-realistic approach causes a number of serious issues for any game development cycle. To generate an in-game, real-time character - fully optimized and looking as realistic as possible - takes a lot of time, money and research. The most important issue however is that, striving for total realism can be counter productive, and actually mar the overall experience. Artists in many fields of CG are currently experiencing what is called “uncanny valley”. This term was first used by the Japanese robot maker, Masahiro Mori. Mori noticed that the more human-looking his creations became; the more people were drawn to them. But there was a threshold to how realistic he could get. Go too far and people would find his creations too spooky, like moving corpses, a sinister mimicry of real human beings. A similar problem is emerging in game development, the more realistic the graphics, the less likely the player will truly connect, and empathize with his/her on screen avatar, because there will always be something lacking in its implementation. The facial movement won’t be quite right, skin will look too plastic or rubbery or the eyes won’t have that living sparkle. The lack of this final few percent of what makes something look real will let the whole experience down. In my opinion it will be many years (for games anyway) before real-time characters and environments come close to this and for gamers to say “wow that looks totally real”, I think that it’s far better to come up with a series of style laws or a style bible that can be applied to all visual elements of a product (even products that lean more towards realistic). These would include rules on character proportions, colour palettes, lighting design, textural and pixel shading design. In a sense, the artist needs to re-invent the world and create new visual laws to engage and submerse the player. This is a far more rewarding direction to move in, as liberties can be taken with this emergent reality. A great example of this is Pixar’s ‘The Incredible’s’ movie. Rather than try and make hyper-realistic characters, the concept artists, animators and environment artists have formulated an entire ‘look’ for the world, and it’s this world that is engaging and visually holds the viewers’ attention. No less attention has been made to the details; in fact the style bible helps with the narrative of the movie in a truly inspirational way. Perhaps consumers think that more real is better, when actually it’s a well rounded thought-through style that will win over its audience every time.



Artificial Intelligence is quite often regarded as the 'holy grail' of game development. In what ways are the next generation consoles helping unravel this very elusive element? AI is quite a game specific task, therefore a more general purpose CPU is better suited to the operation. The next gen consoles, such as the XBOX 360 and PS3 are multiprocessor machines, allowing more CPU time to be dedicated to this task. Some AI algorithms, such as crowd AI, can be broken down into processing units that can run in parallel. These smaller units of AI (for an individual or small group) can then be farmed off to individual chips on the hardware, then come back together in the final rendered scene to give a great crowd AI. These multi processor systems give us more raw power to run our AI procedures, but ultimately it's up to us - the developer - to come up with interesting procedures for the player to enjoy.









In this time of constant sequels to 'big name' games, what importance is given to developing your own game IP for next generation consoles, rather than relying on licenses? Without question, pretty much every independent developer has the desire or dream goal to create their own IP. Often this is from the standpoint that doing so increases the chance of achieving fame and fortune. To create original IP from such a desire often leads to lacklustre results, however, truly outstanding original IP always contains some form of very clear and extraordinary artistic or design vision (both are needed if the original IP is to last beyond the initial 'wow' factor). Unfortunately, even the greatest original IP visions cannot guarantee both fame and fortune. Sometimes that vision is very mainstream, in which case you stand a better chance of it being published. Or, the vision can be very left field - under which circumstances you'll usually only get that IP published, either because of a successful track record or a particular publisher buy-in to a certain distinctive vision. Ultimately however, as a business, relying solely on original IP is not possible, unless you have the continued financial success to support it. This is especially true of the new generation, where the cost of creating original IP is so high that many publishers see it as prohibitive to insuring a stable business environment is maintained. Therefore, the majority of independent developers - those who have not yet managed to create the 'cash cow' original IP - must rely on licenses to safely sustain their business and staff. There are some extraordinary licenses out there - licenses which allow an independent developer huge creative latitude. These can be artistically desirable, creatively important, and as exciting to work on as original IP.

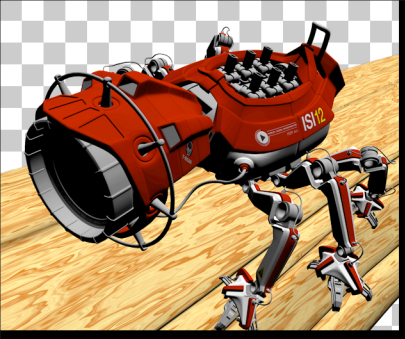


BLITZ GAMES

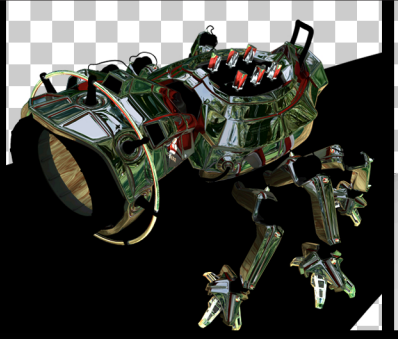
Aaron Allport, Creative Manager Steve Thompson, Art Direction Manager

For more information please visit: www.blitzgames.com

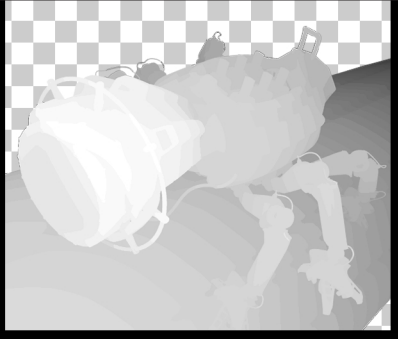
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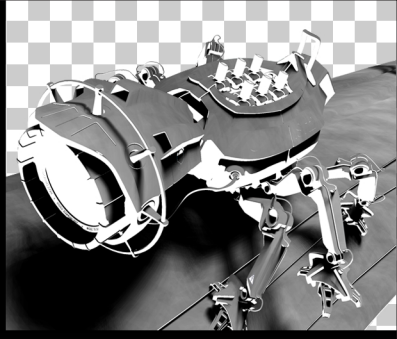
COLOR



REFLECTIONS



DEPTH



SHADOWS

THE POWER OF LAYERS

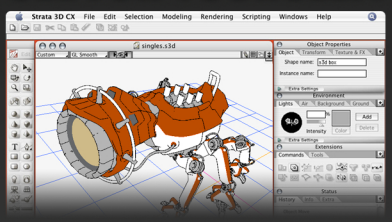


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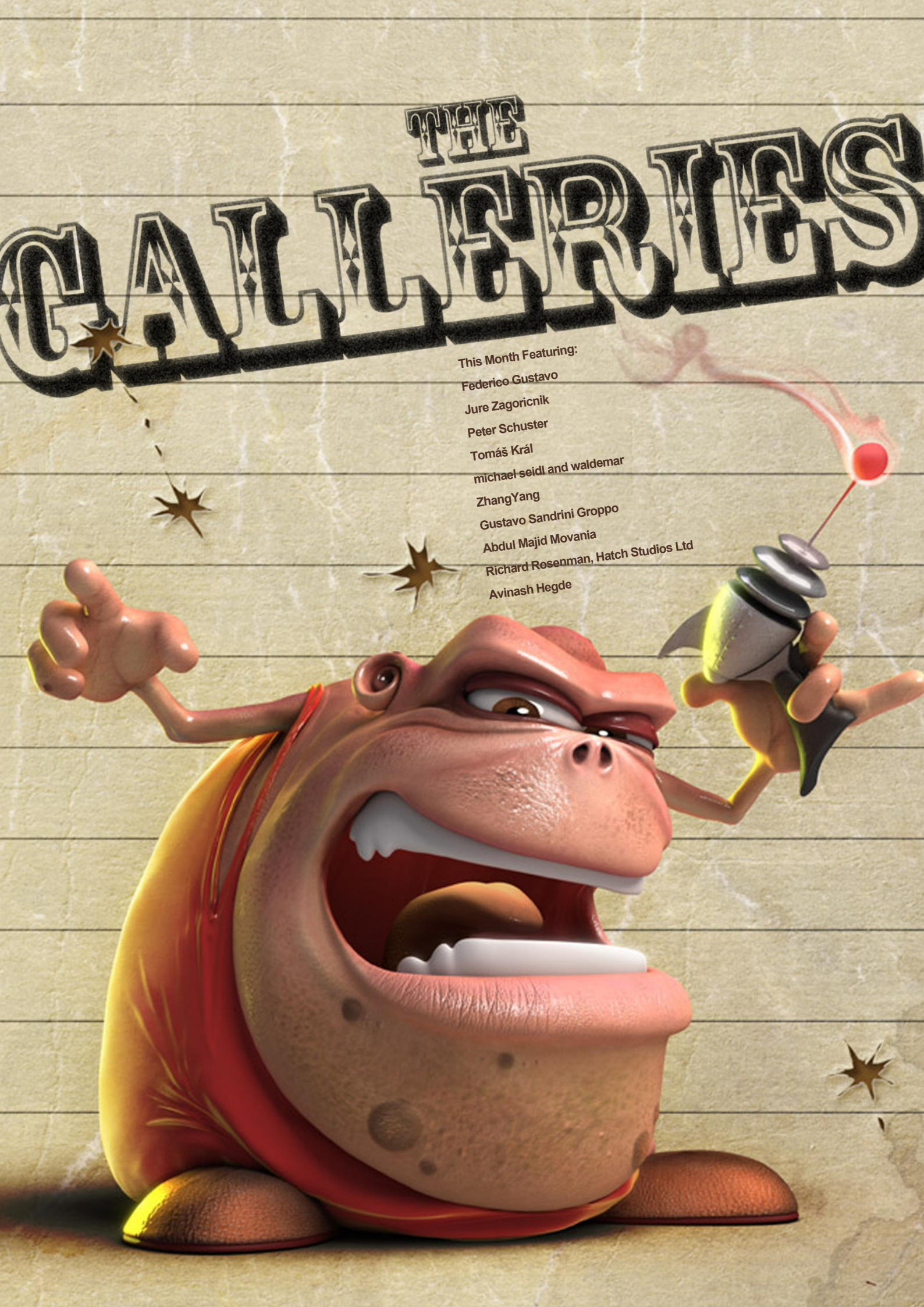
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THE GALLERIES



This Month Featuring:

Federico Gustavo

Jure Zagoricnik

Peter Schuster

Tomáš Král

michael seidl and waldemar

ZhangYang

Gustavo Sandrini Groppo

Abdul Majid Movania

Richard Rosenman, Hatch Studios Ltd

Avinash Hegde

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You can Follow the 'making of' of this image in the March Issue of 3DCreative!

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the 3DC hallenge



3DCreative Magazine introduces the new 'Challenge' Section of the mag. Every month we will run the Challenges, available for anyone to enter, for prizes and goodies from www.3dtotal.com shop and to also get featured in this very magazine! The 3D Challenge runs in the threedy forums and the 2D challenge in the conceptart forums, links to which can be found inside! Here we will display the winners from the previous months chalenges:

Highland Cow

Stylised Animal Challenge

Highland cow

Stylised Animal Challenge

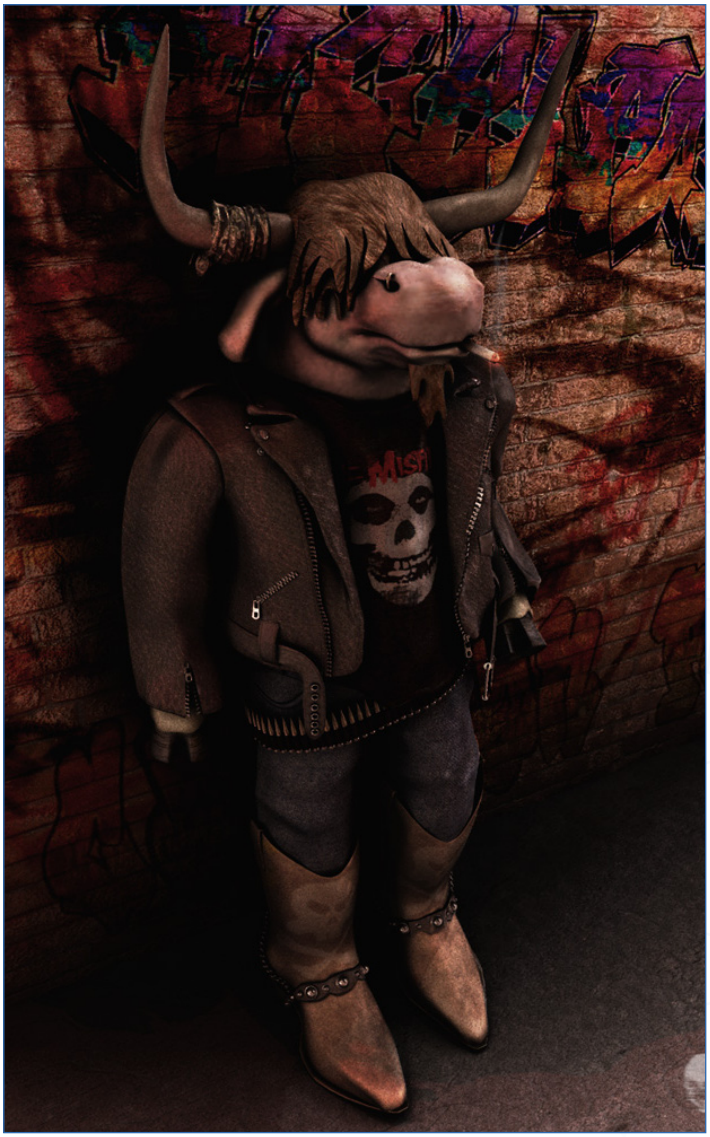
Welcome to the Stylized Animal Monthly Challenge. Each month we will select an animal and post some images in the Forum Thread as reference. All you have to do is create a 3d render of this creature in a stylized/abstact/cartoon style whilst keeping your creature instantly recongnizable. We wanted to publish some content in 3DCreative Magazine on how to create stylized animals such as you see in the many feature films and cartoon galleries. We thought this regular competition might bring in just the images/making ofs we need whilst giving away great prizes and exposure. If it's a success we will start to boost the prizes up as much as possible! This months 'Animal' was the 'Highland Cow'. You can see the top 10 placed entries, as voted for by the public.



JOINT 9TH. - GIDEON3D



JOINT 9TH. - MR_LEMON



8TH. - CAPTAIN_POPO

WHAT ARE WE LOOKING FOR?

Funny and humourous entries which break the animal down to its most recognizable components, enphasize these in whichever ways you think best and render your stylized/ abstact/cartoon masterpiece. The rules are pretty laid back, please submit 1x3d render, minor post work is ok, its up to you if you want to have a background, include some graphical elements or text on your image. Renders of the 800 pixel dimension sound about right, but the top 10 will be featured in 3DCreative Magazine so if you can create some higher res images too all the better. There will be 1 comp per month, with the deadline being the end of the month GMT. For a valid entry, just make sure your final image is posted in the main competition thread



7TH. - HAMMERING3D



JOINT 5TH. - INITIATIVE

before this time. We require the top 3 winners to submit 'making of' overview articles that will be shown on either 3DTotal or 3DCreative Magazine , these need to show the stages of your creation, different elements and some brief explanation text, of why and how you did what you did. We will format this into some nice looking pages to give you some great exposure and us some quality content. Each competition will have one main thread that starts with the brief at the top. This is where all entrants post all WIPs give feedback and generally laugh at the crazy ideas that are emerging each month.



JOINT 5TH. - SLY-OLD-DOG



3RD. - KURIOUZ



4TH. - AUTHENTIC



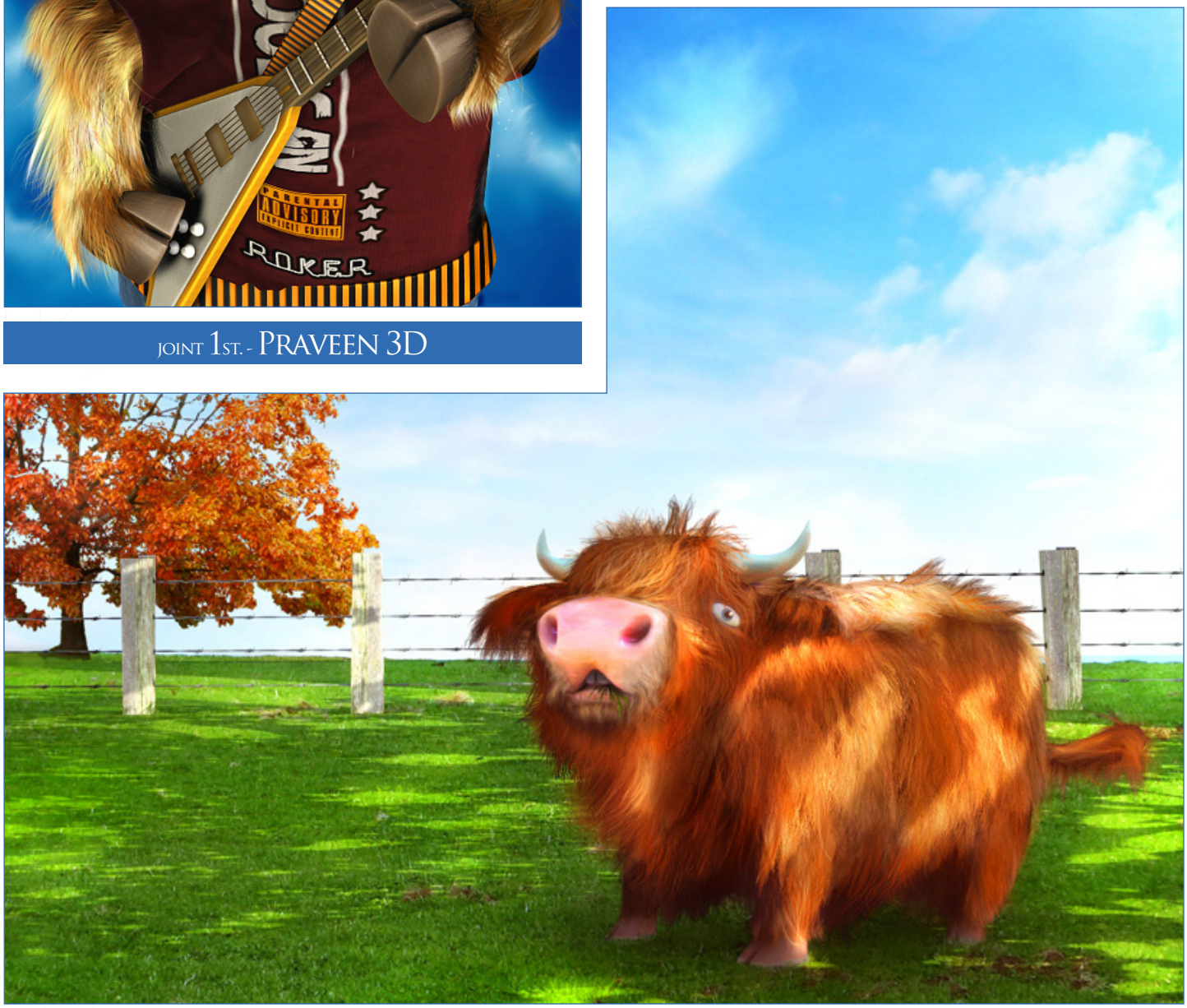
JOINT 1ST. - PRAVEEN 3D

The Challenge now at the Voting Stage is
"OCTOPUS"

The Current Challenge taking place is:
"CAMEL"

To Join the next challenge or view previous and current entries, visit
www.threedy.com
or for the 2D Challenge
www.conceptart.org
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JOINT 1ST. - ARTECNL





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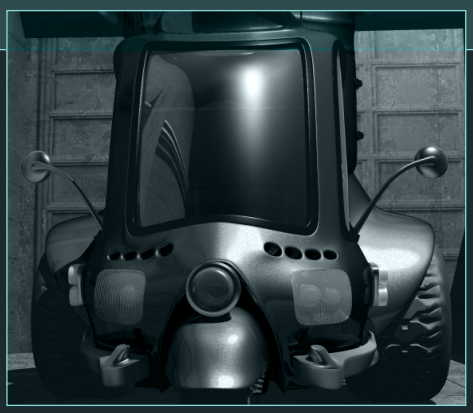
TUC TUC











TUC TUC Is our new precise, step-by-step tutorial which will begin with a vehicle model and cover the principals of applying shaders, placing it in a simple scene & following with a two part section on both lighting and rendering. The tutorial will begin by creating and applying materials for the various parts of the car such as glass, chrome & tyres as well as texturing some simple geometry that will make up a scene. It will then move onto lighting where the focus will be on setting up a lighting rig and the various parameters connected to this. Finally the series will culminate with a section on rendering where the aim will be to finish with a polished image.

3DSMax Version
Page 134

Cinema4D Version
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Lightwave Version
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Maya Version
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Softimage XSi Version
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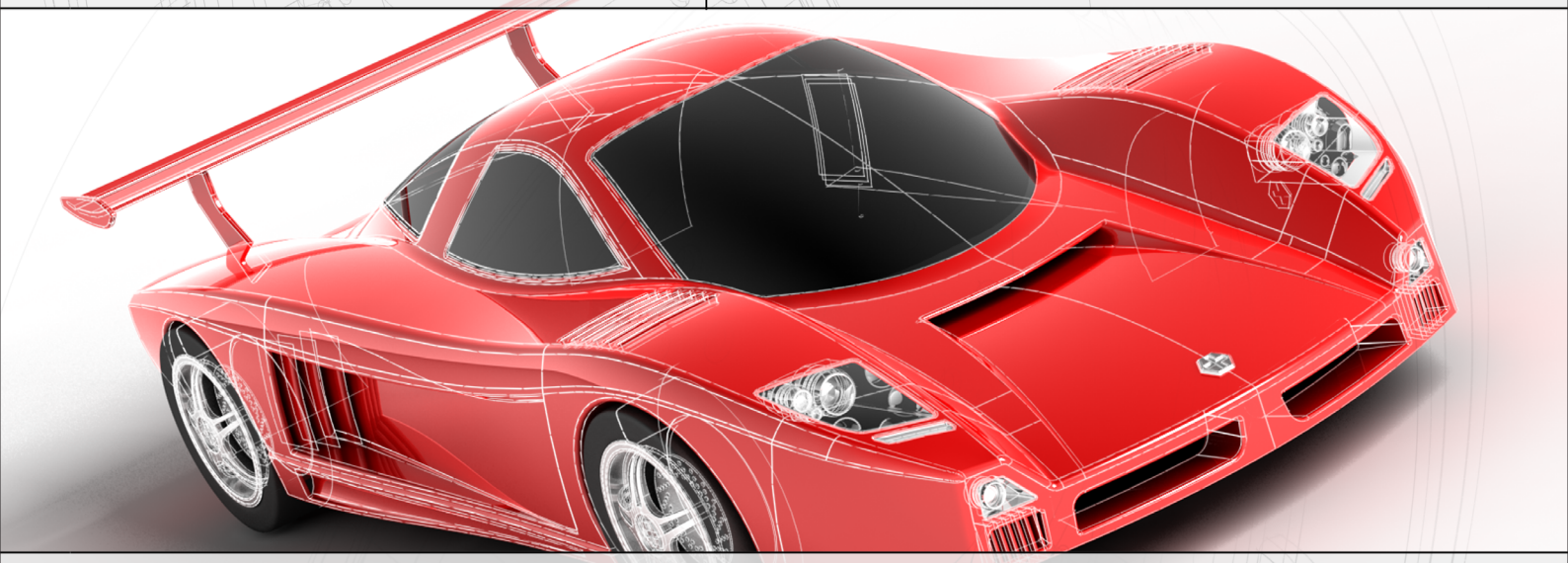
This Month : Part 2

APPLYING MATERIALS & SHADERS PART 2

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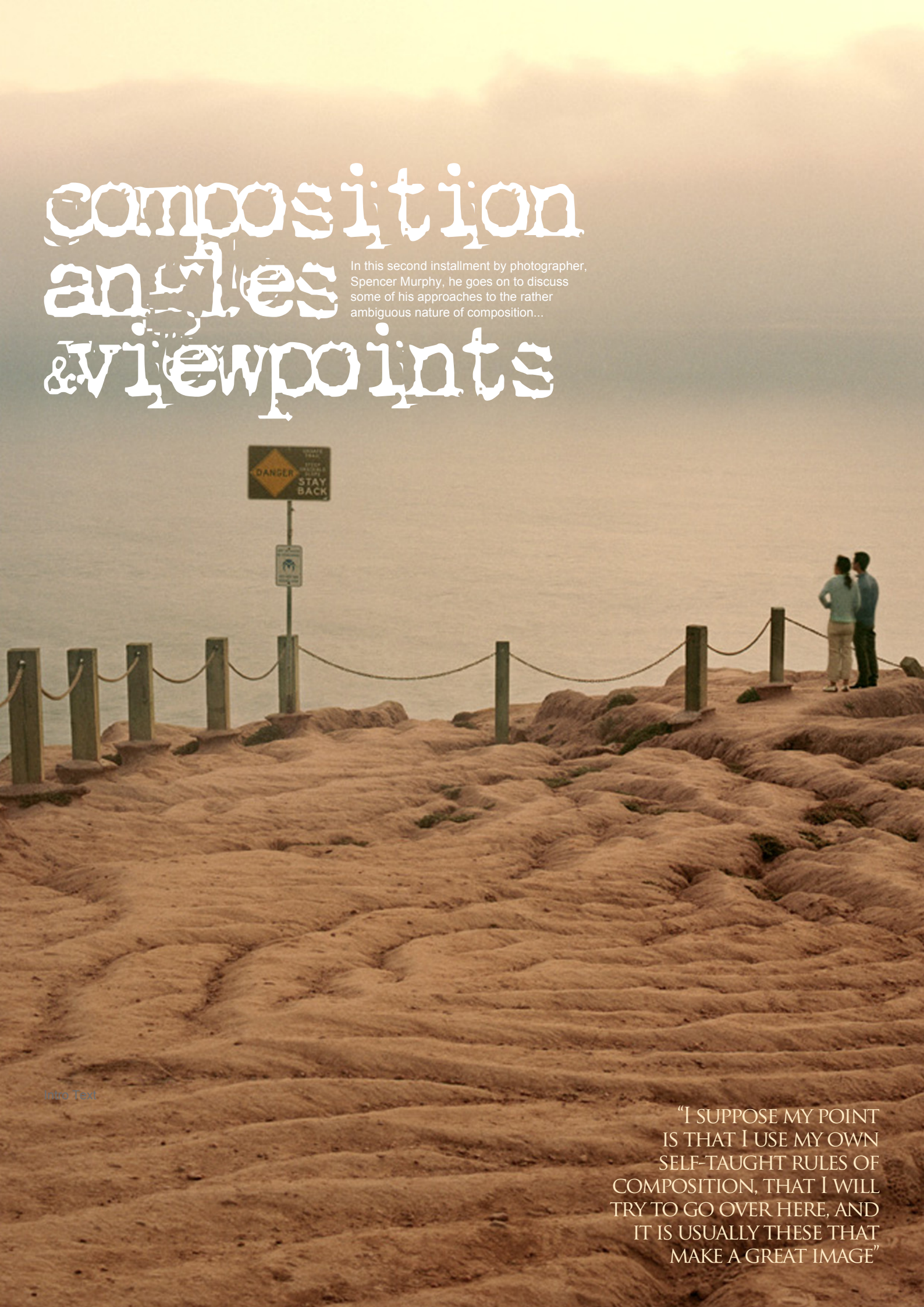
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composition angles & viewpoints

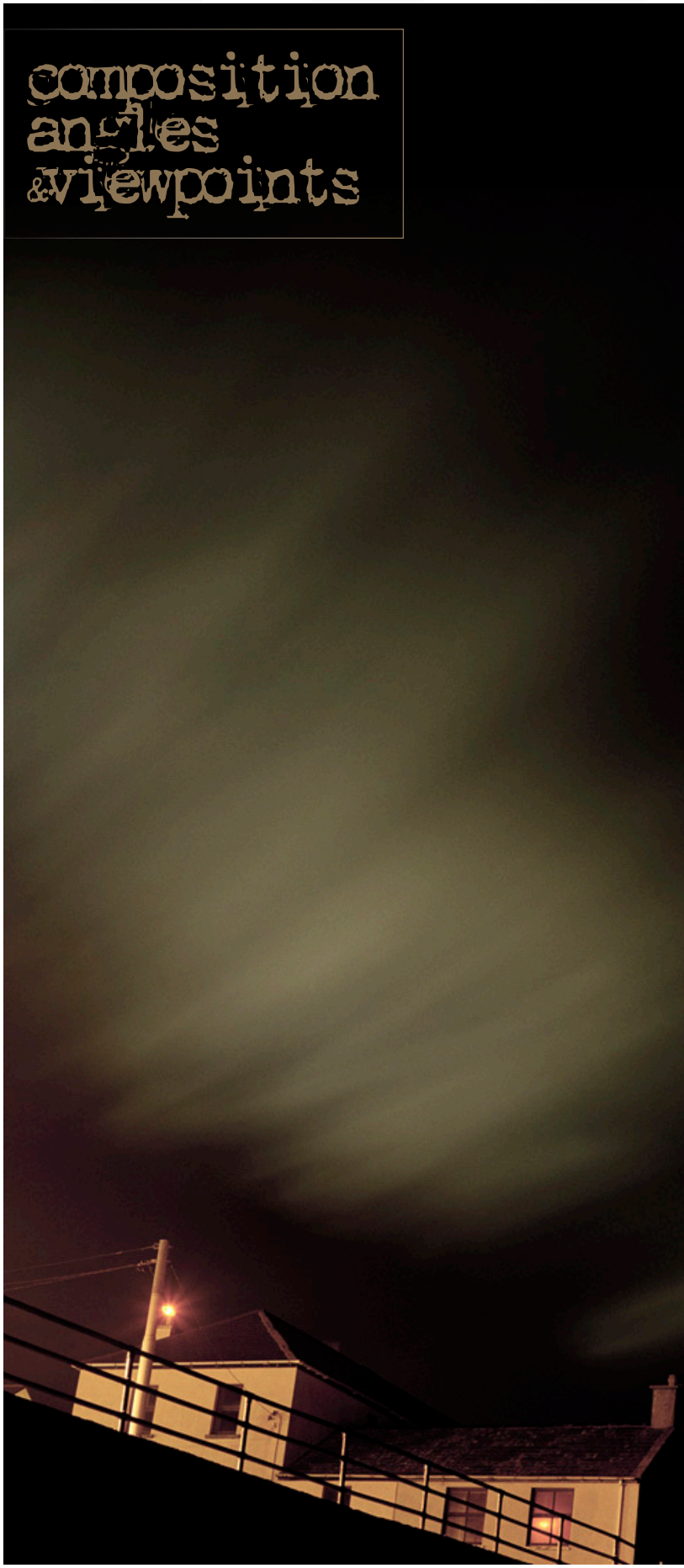
In this second installment by photographer, Spencer Murphy, he goes on to discuss some of his approaches to the rather ambiguous nature of composition...



Intro Text

"I SUPPOSE MY POINT IS THAT I USE MY OWN SELF-TAUGHT RULES OF COMPOSITION, THAT I WILL TRY TO GO OVER HERE, AND IT IS USUALLY THESE THAT MAKE A GREAT IMAGE"

composition angles &viewpoints



Foreword

Composition is an aspect that is intrinsically a part of any work that operates within the boundaries of a frame, it is something that has often perplexed many artists. Numerous laws and theories relating to geometry and divisions of picture space have been explored over the years but it always remains something that refuses to be clearly defined. Terms like the “Golden Section” and “Divine Proportion” often emerge during conversations about the perfect way of structuring the picture plane but it seems as though the closer one gets to clarifying absolutes, the more blurred it becomes. After all, many pictures seem to ignore a number of unwritten laws and accepted conventions and yet, as a result, often work the better for it. I prefer to see composition as something akin to a lump of clay - no real form to speak of but instead something that can be moulded and manipulated to channel the aims and intentions of the artist according to his or her goals. In the following article, Spencer offers us an insight into the reasoning behind some of his photography and the way he composes his subject matter. Composition is something that can’t really be taught, it’s something that comes with practice, but as visual people you will have a good understanding of this. What I can do in this tutorial is give guidance and suggestions, describe how I go about composing my pictures and tell you how different angles and viewpoints will affect the final image. As Edward Weston wrote, “Consulting rules of composition before shooting is like consulting laws of gravitation before going for a walk”. Although this is a little extreme, and if I whole-heartedly agreed with this I may struggle to get my fee for writing a tutorial on composition, it is sound advice. You can learn from this tutorial but do not take it as the law. Some of my best photographs have come from fleetingly looking through the camera and seeing something unexpected. Although the majority of my images are taken on large cameras fixed to tripods these days, I still look at various angles and move around my subject. It’s often the final frame that I thought I’d try at the end of a shoot that comes back from the lab and turns out to be the image that the Art Director, or myself, choose. I suppose my point is that I use my own self-taught rules of composition, that I will try to go over here, and it is usually these that make a great image, but I try never to forget that there are different - and often better - ways of looking.



A Formal Composition

I tend to favour looking quite formally at my subjects, I enjoy the graphic nature of things when you make a clean, simple image. When applied to a landscape I will tend to view it straight on. What is of key importance to me when doing this is that the horizon line is as straight as possible and any clear vertical lines are also straight. I suppose the most formal thing to do is to get the horizon line central in the picture, but this is just a jump off point that really should not dictate how you photograph. Putting the horizon lower down may give you a big, elaborate sky, or higher up may give you depth and help to include important information in the foreground. If you start from a point (a tripod will make this easier) then make movements up and down and side to side and, gradually refining these movements, you should find your composition. Things to avoid are cutting off things at the edge of your frame and lining up objects so that they appear to grow out of something else. If something is surrounded by clear space it will help to lift it out of the image. Again, I must stress these are only guides because these are rules I have often thrown out the window, I have many an image that has clutter sprawling out of the frame in every direction. It is much the same to apply formal composition to a portrait or still life. The



key again is to keep horizontal and vertical lines as straight as possible. To look at something formally, to me, suggests looking directly head on to the subject. Start from there and then move around or move the subject around.

The Informal

In brief, to photograph something informally can help to give the impression it was less 'staged'. You can still use ideas of formal composition when doing this. There is a huge amount of grey area in between the two. To give something a less formal look you can shoot hand-held and work freely around your subject. You can shoot through the foreground so it appears out of focus in the front of the picture. I don't really have any examples of this in my own work. I tend to use ideas like these and then formalise them in my composition. There is no right and wrong and the best way to find your own picture is to look through the camera and move. Don't feel you have to be standing up; kneel down, lie on the ground and climb up on things. Too many people just put a camera to their eye and forget that they are able to move.

Angles and Viewpoints

I'm going to try to really simplify some of the key ideas of angles and viewpoints in photography, which is no different to thinking of them in



terms of painting or film. I don't really see any difference between the angle and viewpoint, which can be taken to mean the same thing, so forgive me for any cross-over.

If you look at something straight on you will get a very matter-of-fact picture of that subject. I enjoy doing this, especially in my portraiture work as I find my interest lies in the person and there is no need to use quirky angles. If you look up at something or someone it will appear big, as though it is looming above you. This is a good trick if you would like something to appear bigger and more menacing, even if applied to a small object. It is also a nice way to abstract things. Looking down onto a person or object will have the opposite effect and will make your subject appear small. However, when applied to a landscape you still achieve an affect of grandeur if you look down from, say, a mountain, as you can only appreciate the vastness of the landscape below. This would have a more calming effect than if you were to look up at the mountain. Your viewpoint can help you to separate objects in the frame. By going lower you can hide background information behind something and frame it with the sky, or by looking from above you can increase the space surrounding that object. Another tip is to use your lens to create a different view; a wide lens will separate out the background and foreground, whereas a standard or long lens will compact things.

When I approach a subject I often have a pre-conceived idea of what I'm trying to achieve and I find this helps my image-making. I have, if you like, a picture in my head that I then try and make a reality. This can sometimes lead to disappointment, but more often than not helps my process in making a successful picture. This does not work for everyone and it might be that you work better approaching something in a 'Zen-like' state - completely clear of preconceptions. Composition is something we all do in our own specific way and should serve to help show things in the strongest way. Avoiding clutter and confusion can help you to achieve this. Designing your angles and views around the feeling or mood you are trying to convey will then strengthen the ideas that are contained within the frame. You can use these ideas or forget them, what is most important is that you understand why you are trying to create an image and how you can use your individual way of seeing to show that.

SPENCER MURPHY
For more from this artist visit
www.spencermurphy.com



3DCreative have teamed up with 3dtotal.com and design studio press to give you a preview of some fantastic books on offer.

This Month; The Skillful Huntsman. Entertainment Design Director at the Art Center College of Design, Scott Robertson said, "Several years ago it struck me that people would be interested to witness the creative visualization process we undertake within the entertainment design discipline." His interest in education and his desire to share the amazing things that were occurring in his studio classes at Art Center led him to the creation of this magnificent book.



A tale from the Brothers Grimm provides inspiration for three gifted students from the world-renowned Art Center College of Design in Pasadena, California. For fourteen weeks, Khang Le, Mike Yamada, and Felix Yoon were guided by their instructor, Scott Robertson, to create original design solutions for the environments, characters, props, and vehicles found within The Skillful Huntsman The trio's sketches and full-color renderings thoroughly document the creative process of concept design, revealing a host of intriguing places—from sci-fi cities to castles—and people—from giants to royalty. A running dialogue between Robertson and his students also lets readers in on the behind-the-scenes action of one of the world.s leading entertainment design schools, as they discuss the ideas and techniques used to create this stunning collection of artwork. This exciting book surpasses the typical story-art book in that it takes the reader on a step-by-step journey in the creation of a fully realized vision. Using digital and traditional media, the artists and Robertson reveal some of their visual tricks of the trade. A must for artists, aspiring entertainment designers, comic aficionados, and anyone interested in the creative process, The Skillful Huntsman. offers insight into the mysterious world of the imagination

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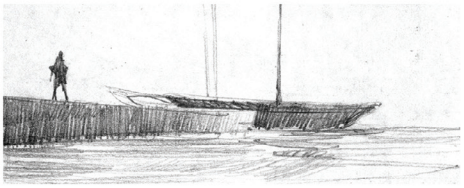
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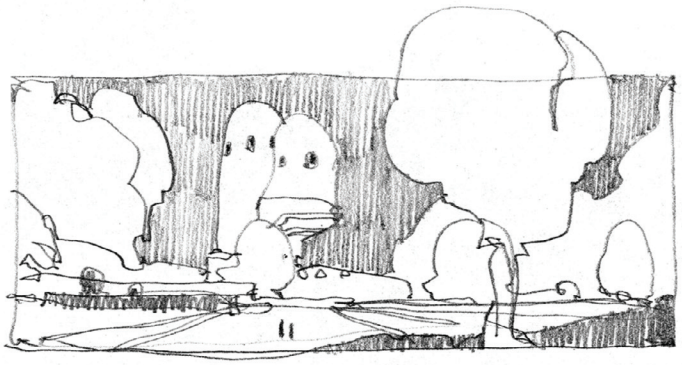
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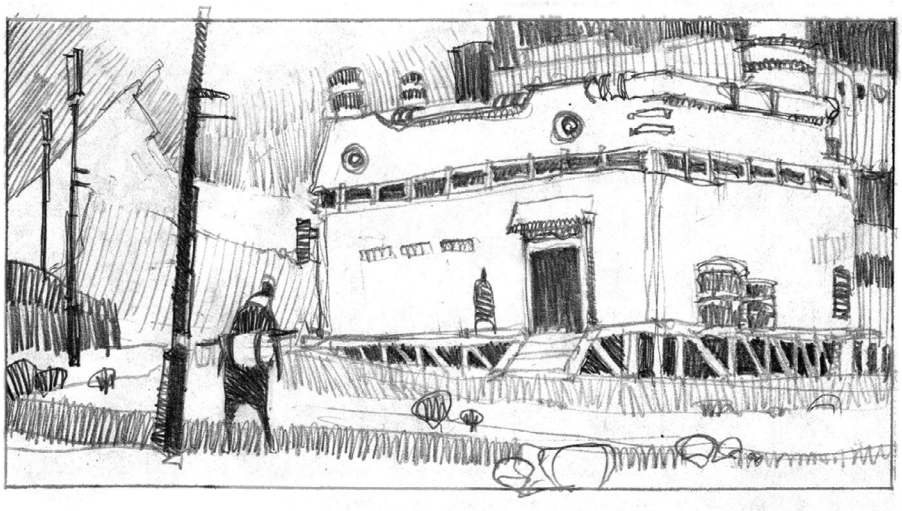
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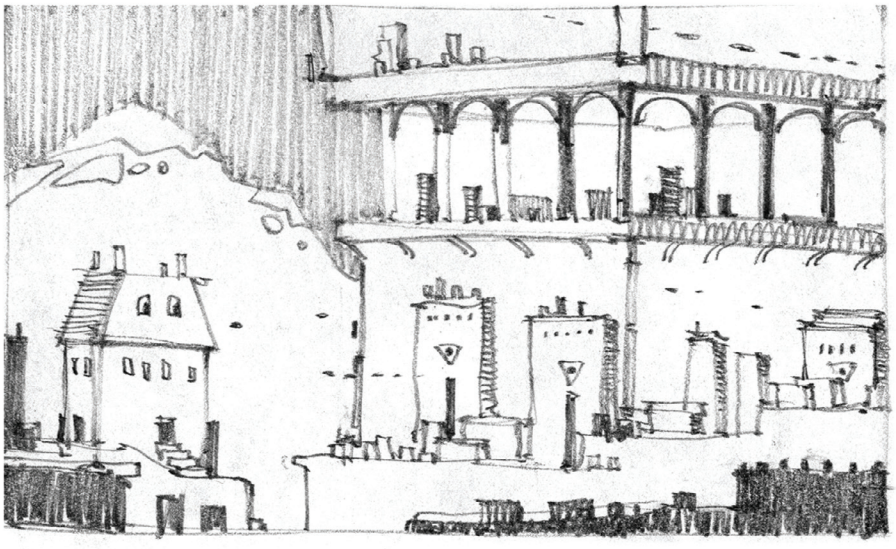
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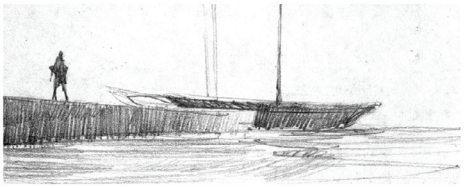


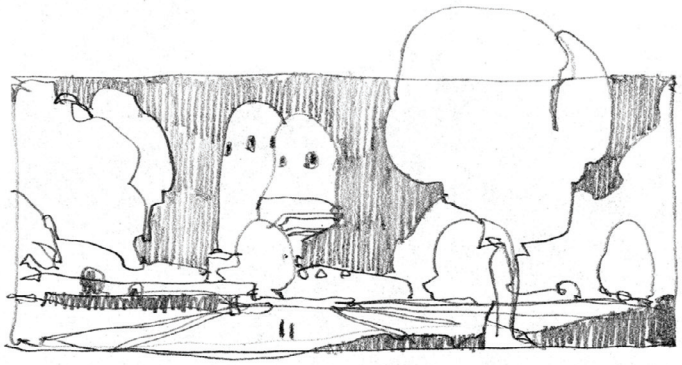
TRAVELS

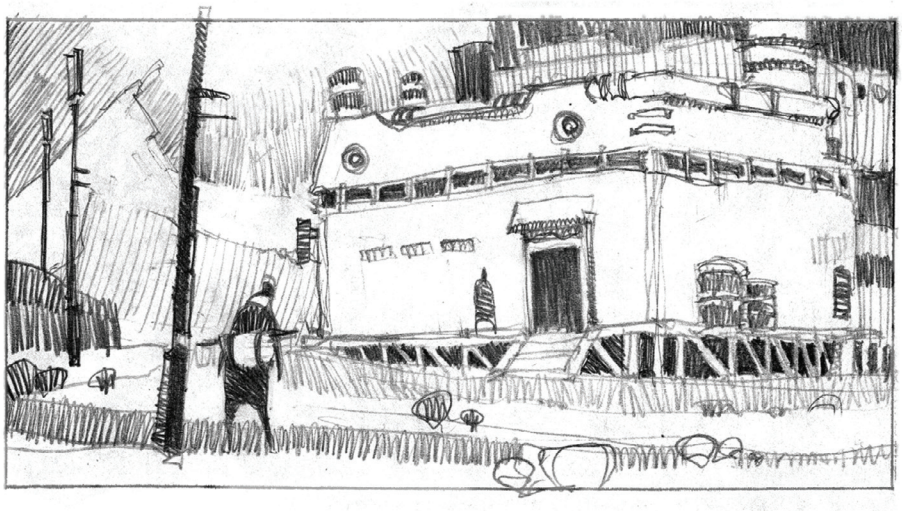
Felix: I randomly came up with thoughts and sketches of places where the hunter might have traveled. These places could be pure landscape, or could involve man-made structures. I was also experimenting with different time periods, times of day, and moods.

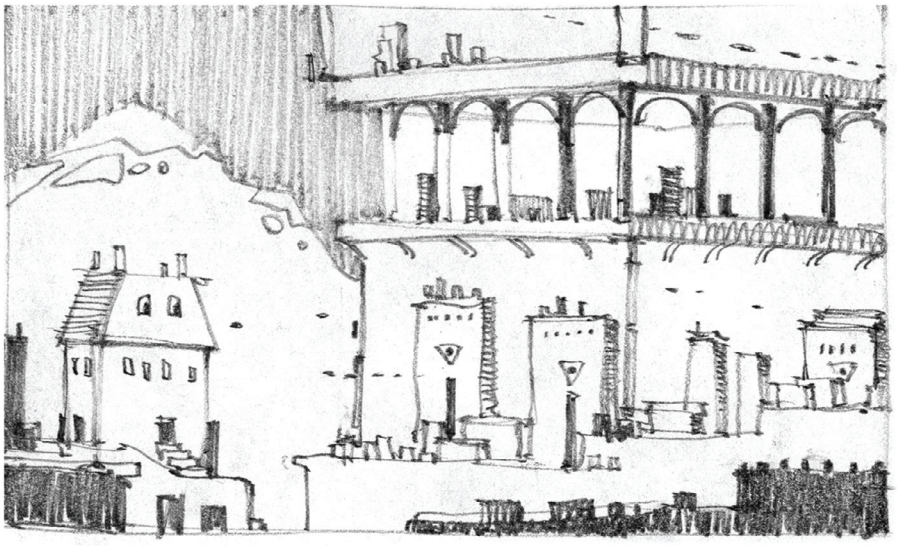
Scott: The design of new environments is quickly becoming one of my favorite subjects to teach and do myself when I can find the time. With this project we really let ourselves go freely to spin the story into different time periods. In addition, we wanted to consider a variety of levels of technological sophistication that the society of the time might possess. Once you make this leap into the future or the past and assume a certain level of technological ability of the people living in that place, it will feed your imagination on what the buildings, landscapes, and everything in that new environment might be like. When drawing and designing these new places, you need to be able to let your mind travel to this place and visit it in your imagination. When you get there, draw what you see.

FELIX YOON









TRAVELS

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In this new 5-part tutorial, we will take you from a basic level through to some of the more advanced LightWave lighting techniques. If you are not a LightWave User you will still learn a lot from the principles taught...

lightwave

COMPLETE GUIDE TO LIGHTING

"3D LIGHTING ALLOWS YOU TO CREATE LIGHTING CONDITIONS THAT IN THE REAL WORLD ARE NOT POSSIBLE. THIS EXPANDS THE DOMAIN OF EMOTIONS AND IDEAS WE CAN COMMUNICATE."

COMPLETE GUIDE TO LIGHTING

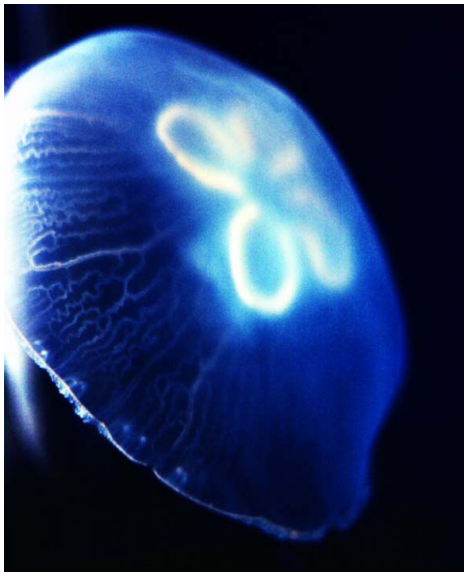


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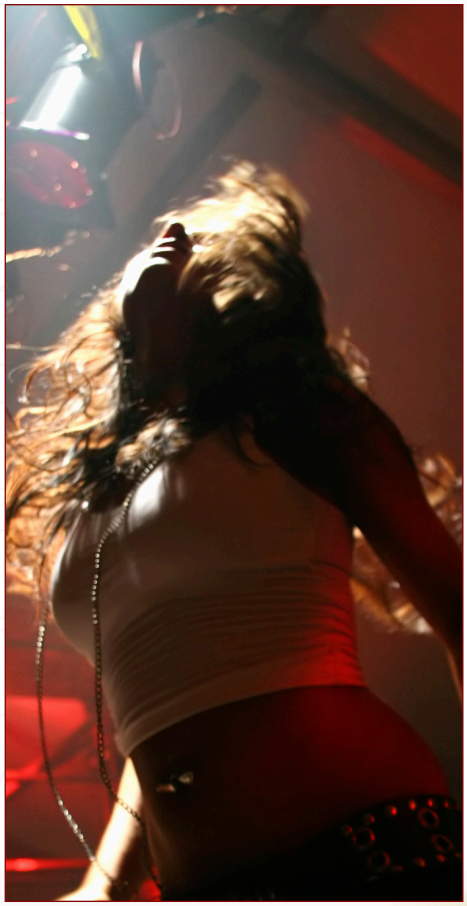
LightWave

What is Lighting?

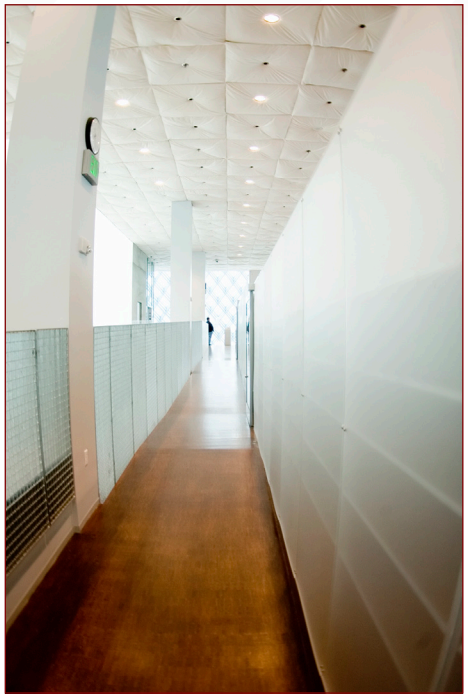
Something that makes things visible or affords illumination: All colors depend on light. Also called luminous energy, radiant energy. electromagnetic radiation to which the organs of sight react, ranging in wavelength from about 400 to 700 nm and propagated at a speed of 186,282 mi./sec (299,972 km/sec), considered variously as a wave, corpuscular, or quantum phenomenon. (http://dictionary.reference.com/browse/lighting). Lighting exists with or without humans; with or without life existence. It's used by many animals and humans to communicate within their living environments. Long ago men discovered fire, and with it, a new way of seeing life. Nowadays we have both physical and virtual tools to produce light, which allows us to communicate more intricate messages and emotions. Lighting is the act of using shadow and light with specific intention. For people, it is a way of living and seeing the world; it is a way to communicate messages and emotions within our living and breathing environment. What is lighting in real life for? It's a communication tool which helps humans to visually communicate ideas and emotions. In real life, a photographer uses it to bring attention to a part of an environment, to make a product look awesome or a girl look even prettier. A good architect knows that buildings should be designed in accordance with the lighting inside and outside the structure. Your own studio may have specific lighting for your eyes to be more relaxed when working. A policeman may use a bright light to make someone talk; romantic lighting may help a guy to take out a wedding ring, and ask his loved











one to marry him. Lighting can also trigger your adrenaline in a night club, so there are many uses for lighting - all of which involve light and shade. Shadows can't exist without light - it is the eternal dance between light and shade that helps us to understand and communicate within our living environment.



What is 3D Lighting for? CG Art

and 3D are tools for communication and expression. 3D is a virtual world in which many real life impossibilities can be done. Lighting also exists in this virtual 3D world. Lighting in 3D helps us to communicate emotions and ideas that affect the real world. What is the difference between real-life lighting and lighting in 3D? One exists in the real world, whilst the other one exists in the virtual world. Both affect you in your everyday life. 3D lighting is able to affect you at the movies, through commercials, print-ads, etc. 3D lighting can affect you as much as real life lighting, and I dare to say that its domain is even bigger. There are impossible things that just can't be done with real life lighting. Those impossibilities may be possible in the 3D world, by using 3D lighting. A 3D lighting artist may have the same - or more - powers of communication than a real life lighting artist. 3D lighting allows you to create lighting conditions that in the real world are not possible. This expands the domain of emotions and ideas we can communicate.

LIGHTING IN REALITY

Let's go deeper into the differences between lighting in 3D, and lighting in the real world. To the right you have a picture of a real life photographic studio setup. This setup is composed of many elements; a camera, 2 lights, ambient light from the room, and a background. We even have a lady on the left with a laptop, probably just browsing through some pictures. The photographer takes anything undesirable out of the shot; objects, lighting, shadow, people, etc. and he also positions cables out of shot. He uses a white backdrop as a background. This allows the photographer to produce a portrait with nothing but white space around the girl. As a result, viewers focus on the girl, and not on any other object or feature inside the room. In real life studios, we block and take away things we don't want to see. When you take a picture, everything you shoot will be considered to be part of that 'reality'. Most cameras are shaped to a portrait 2D representation of what our eyes see, of what we consider to be 'real'. However, some camera lenses will make you look thinner, or even taller; they can make something look completely different to what it really is. Most people don't dare to question what they see, but there are things that we can't even see with our own eyes! Knowing what makes people believe something is real is essential, and it allows 3D artists to duplicate "reality" in a virtual space, so you will believe such a 2D representation is a 'real' snapshot, picture, or video.





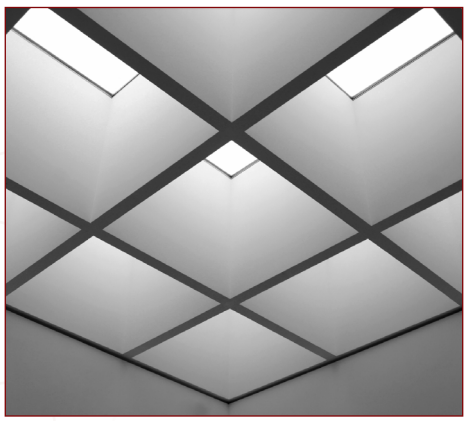
LIGHTING IN 3D

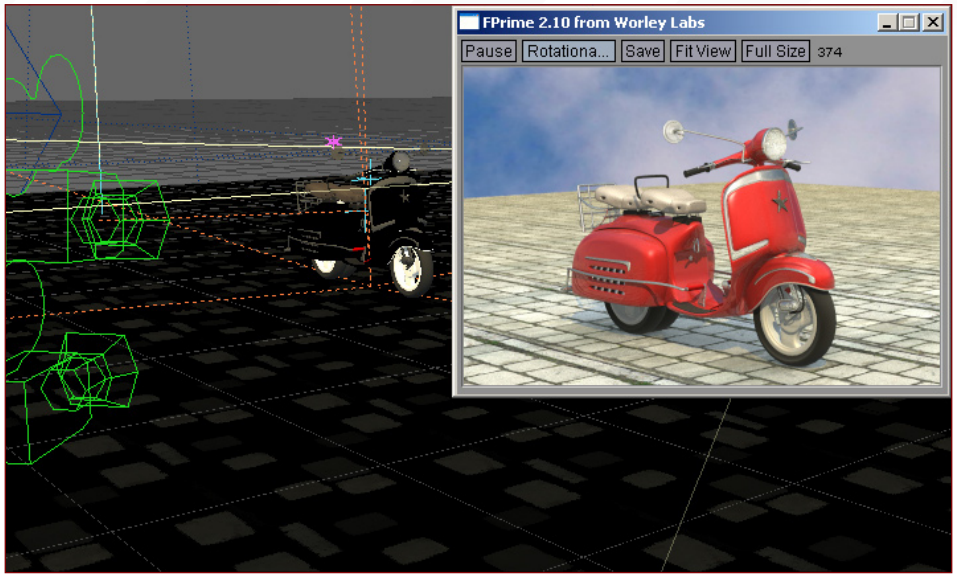
In the image on the following page, we can see a 3D lighting setup. In green, we can see two 3D cameras, which are facing a 3D Vespa motorcycle. There is also a little window showing the Vespa in full colour. This is what our virtual camera is looking at. You will notice that there are no cables or light sources visible in this view. There are some dotted lines on the left view, but they are not shown by the camera, and there is a reason for this. In 3D we are able to hide light sources, and we don't need to worry about cables, or even paying the rent of two expensive cameras on

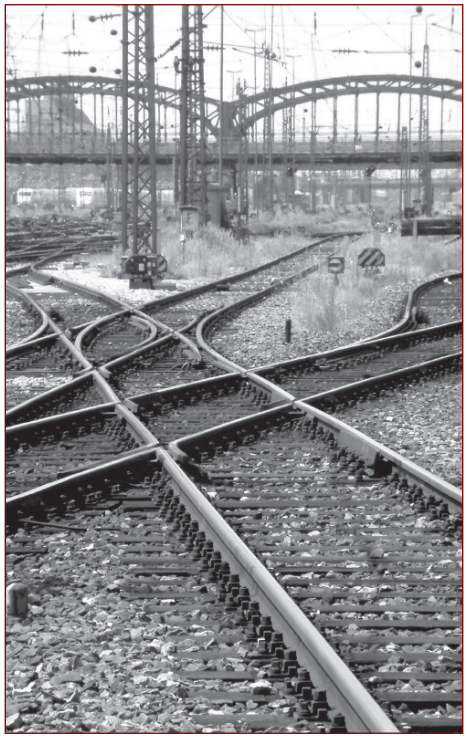
set. You can have as many cameras and objects without paying extra money to have them. In real life we focus on taking away undesirable objects from the shot. In 3D it works the other way around; we need to put everything that we want into the shot, even the imperfections. This specific shot has a floor, and beyond it we can see a sky. Both were first painted or photographed then where imported into a 3D program. This 3D shot started without any sunlight inside it. In 3D we can simulate reality, but everything has to be made from scratch. In 3D, there is no realism given by default. There is no default ambient lighting like the one of a real photographic studio. To obtain realism you need to understand what makes something look real. By understanding what makes something look real, you can later on simulate it using 3D software packages.

Why does realism matter in 3D?

Realism is complex to recreate - it is more complex than any other artistic style. Training yourself against the most complex of styles will highly train your eye for observation. In the process you will learn to manage tools with precision. You will be then ready to make your own style (other than realism) with precision, and communicate your ideas with the same precision, which is essential, and allows you to effectively transmit a message to your audience. By affecting audiences you can change the world: you can print your own footsteps in history, for humanity to follow them, and use them to create a better world.

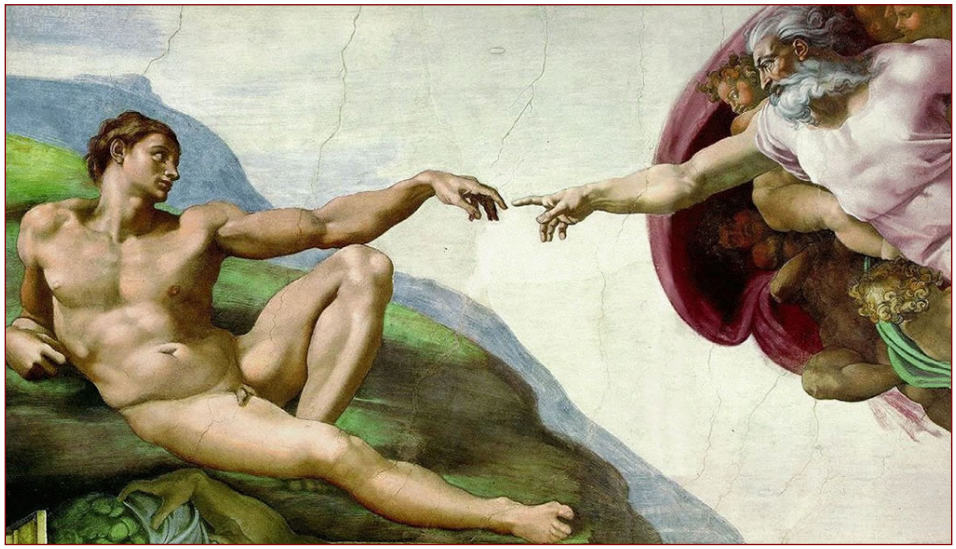






What makes something look real?

Lighting plays a very important role in making something look real. Lighting is composed of shadows and highlights. Realism does not involve colour. Everything you portray with a black and white camera is still real. Black and white cameras don't portray colour. Realism is not based on imperfections or richness in textures, but they do play an important role in making something look more believable. However, they are not as important as shadows and highlights. An intricate texture in the dark will not even show itself, no matter how detailed it is. A 3D ball over a 3D plane with a grey default texture can look real, since it already has what it needs: shadows and highlights. Textures help to define the domain in which an object exists, they add context and story to objects, but they don't define what is real and what is not. I'll now try to explain the previous with a metaphor: 'lighting is the basement and foundation of a building called realism'. This building has many floors, but none would stand if there wasn't a solid foundation. The foundation is given by the basement, where there is a balance between shade and light. Textures helps to enhance the building, but they don't prevent it from falling over. The previous metaphor is important to remember, since it defines an approach to obtain better realism in 3D. Many people in 3D tend to apply textures before lighting, but better textures don't define realism, they can only define how believable objects are. A scratch may tell you an object is old; dust can tell you if it has been on the floor, or not used for a long time. Details tell you small things that make objects more believable, but not real. Texture tells stories; how it was made, where it has been, what it is made of, when was it created, etc. That enhances realism, but it does not define it. The only thing realism needs, is a moment of existence. That moment is defined by the light and shadow inside a frame, picture, memory, or film.



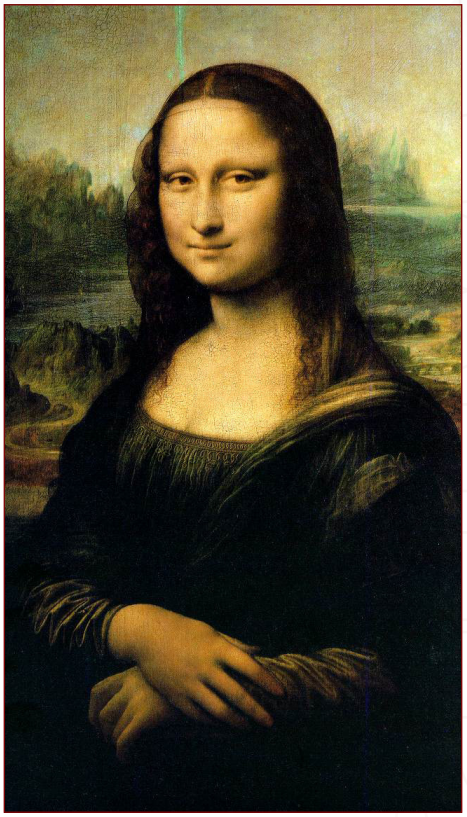
Learning to Learn: The Power of Refinement

3D programs are complex, and all have many buttons and features, but knowing them all doesn't mean that your work will be better. Most features don't make your work quality have more quality. It is the mastering of tools, along with a personal goal and vision, that makes your work special. When you doubt this, remember that great artists such as Michelangelo or Leonardo da Vinci used simple tools to create masterpieces that have remained masterpieces for hundreds of years. Martial arts show us a similar example. A good martial arts' master will first teach you how to give a good punch before giving a flying kick. This reminds me of the movie *Batman*. There is a scene where a guy with lots of knives approaches Batman, and the guy starts moving knives in such a way that you believe he can actually beat Batman. He shouts, moves fast and fancy, has a bad face and temper, and you think, 'this guy is at another level'. Once he is in front of Batman, Batman gives a single punch, and the guy falls to the ground. 3D is the same; you can win the fight with the most basic weapons, even if you already own the latest gadgets. *Kill Bill* is another recent movie that holds many good examples of this principle. Beatrix Kiddo asks Pai Mei to be her master. Pai Mei, realizing that Beatrix assumes she knows a lot, laughs at her and asks her to pick a weapon. Pai Mei is then able to avoid all her moves and win the fight. The same happens









in 3D. Those who "know it all" can be beaten by the simplest of moves. The true master is not the one that uses the latest technology, but the one that uses the simplest techniques to attain the best results. Lighting is an art that requires a lot of practice and reasoning. I compare it to martial arts: you start learning the basics until you achieve perfection, and then you can pass on to more complex moves. The same happens with 3D. There are many 3D programs to make 3D lighting. There are many martial arts that will allow you to win a battle. It is the combination of them that makes you powerful. Knowing the "exquisite art of the sword" didn't allow Beatrix Kiddo to win the fight against Pai Mei. It is the practice and reasoning behind lighting that will allow you to attain your goals. In the following chapters I will explain how to use LightWave's texturing and lighting system. I will begin by explaining the basics of the interface. This will allow us to understand what the basic tools for light and texture are. Then we will be able to start combining these tools to produce results. Keep in mind that the most important tool has already been explained: this introduction, and the logics behind lighting.

The LightWave Layout: Hub, Modeler & Layout

LightWave is divided into 3 main programs: Hub, Modeler and Layout.(Fig 01). The Hub is used by Layout and Modeler passes information between them - it works in the background, and normally doesn't need your attention. Modeler is used for what its name suggests: modelling. You do however need it in order to assign surfaces to polygons. Layout has many uses - it is used to setup lighting, tweak textures, animate, create particle effects, etc. Before passing into the specific tools for lighting and texturing, it is vital to understand how to manipulate items inside Layout. This chapter will explain Layout's basic interface. We will cover the basic tools required to load and manipulate elements inside Layout.

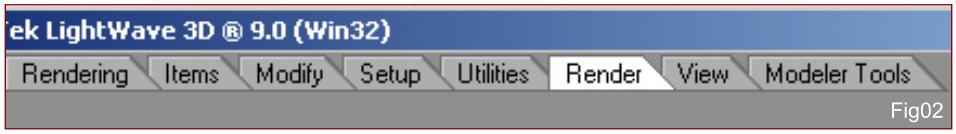


Fig02



Fig01



Fig03

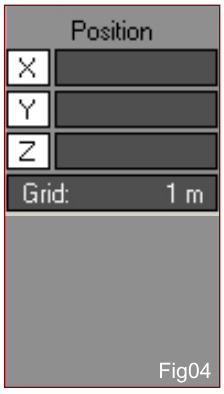


Fig04



Fig05



Fig06

Layout's Nature

Programs use metaphors in their interfaces. Many text editors use virtual sheets of paper; Painter uses a virtual canvas and brushes; Microsoft Windows uses folders and windows. We can implicitly know what is the functionality of a tool when there is a visual relationship with its real world counterpart. The tighter the metaphor, the easier is to learn the software. Layout does not have intuitive tools, which also happens with other 3D software packages. You can create many things inside a 3D program. The lack of a metaphor makes the learning curve steeper. However, it does allow you to be more efficient and creative in your work-flow. If you have a tool that has a hammer icon on it, you will probably not try to use that tool for other than what a real hammer is used for in real life. Having an interface without metaphorical relationships may be difficult to learn at first, but allows you to be more creative in your solutions later on.

Layout Overview: The Tabs

The top part of the interface is divided into tabs. Each tab gathers a group of different buttons. Lighting has a close relationship with the rendering parameters. Therefore, you will pass most of your time using the Render tab. Tabs are fully customizable. You can delete and add tabs, and change the buttons that each tab holds. In the example above, the left-most tab says "Rendering", which is a tab I created myself. It gathers a group of functions that I normally use to render. You can create your own tabs, and even make one with your own name (Fig.02). There is a group of buttons that remain unchanged at any tab. These buttons contain menus that are frequently used by all disciplines: lighting, texturing, animating, rigging, etc. They are the most frequently used buttons, and therefore they are shown in any of the tabs (Fig.02 & 03).

Bottom Menu

The lower part of the interface allows you to set items in a specific time and space. On the left there are 3 text boxes that will show the precise position in XYZ of any item inside our scene. You can input your own coordinate and alter the position of any item. You can see the current grid size below these input boxes. The grid works as a size reference, where each grid square represents one unit. In this case, each grid square represents one metre (Fig.04). On your right you have the Current Item menu, which allows you to select items inside the scene. On the lower part we have 4 buttons: Objects, Bones, Lights and Camera. They represent the different item categories inside Layout. Clicking in one will restrict the type of item being shown by the nearby menu called Current Item (Fig.05). The rest of the buttons on the bottom-right part of the interface will allow you to animate and playback previews. On top of them we can find the time-line. Each vertical line in this time-line represents a frame. Digital Cinema has 30 frames per second, whilst a video played on TV has 24 frames per second. The viewing limits of this time-line are represented by the input text boxes on its left and right sides (Fig.06).

THE VIEWPORTS

Viewports exist in both Modeler and Layout. They primarily allow you to position objects inside your scene: to move, rotate, resize, stretch, and so on. Viewports show us raw representations of basic surface properties. It is easy to preview the colour of surfaces using the viewports. You can find out obvious stretching errors in texture maps, shadow angles, and other simple things. However, viewports should not be used to preview complex lighting and texturing. There are other tools that can be used for such purposes. Layout starts by default with a single viewport. You can add viewports to your interface. Press <D> to open the Preferences menu. In the Display tab, there is a drop-down menu named Viewport Layout . Here you can specify the arrangement of the viewports (Fig.07 & 08). There are different types of items inside Layout. You can select them directly via the viewports by left-clicking on them. This is a way to select things, but there are plenty of other ways to be more precise. The Current Item menu allows you to select items by name, and is located at the bottom of Layout's interface (Fig.09).

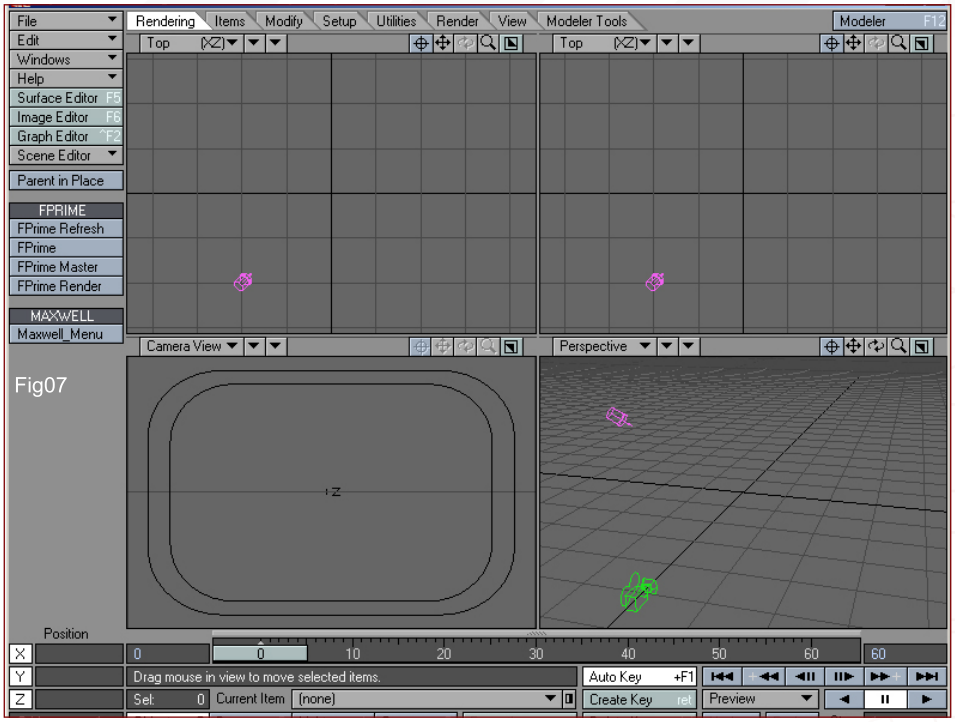


Fig07

IMPORTING OBJECTS INSIDE LAYOUT

There are two common ways to open an object in Layout: passing it from Modeler to Layout, and importing it via Layout without the need of Modeler. Let's further explain each of these options. **Sending objects from Modeler to Layout:** to pass an object from Modeler to Layout, you first need to save your object inside Modeler. You can't send un-saved objects to Layout. Once it is saved, there is an arrow in the right-top part of Layout's interface. This arrow is facing downwards. Once you click it, you will have 3 options. The third option reads: "Send Object to Layout". Selecting this option will launch Layout with your object situated at the centre of the scene (Fig.10). **Importing via Layout:** When you already have an object, you don't need to open Modeler in order to send it to Layout, you can just import them via Layout. Let's take a look at how this is done. You first need a model to open, which could be in LWO or OBJ format. You can download free LightWave models from many sites on the Internet. 3DTotal.com offers a section of free models in their "Free Stuff" section. Inside the Human Characters section, page 3, you can find a very nice model supplied by Werner. You can download it to make further tests. To find more places to download models, type "free LightWave models" into Google.com (Fig.11 & 12). Once you have an object, open Layout. Layout starts with a default scene with no objects inside it. On the top-left menu there is a drop-down button named File. Click on it. It will display a drop-down menu. Click on the Load option, then select Load Object from the resulting

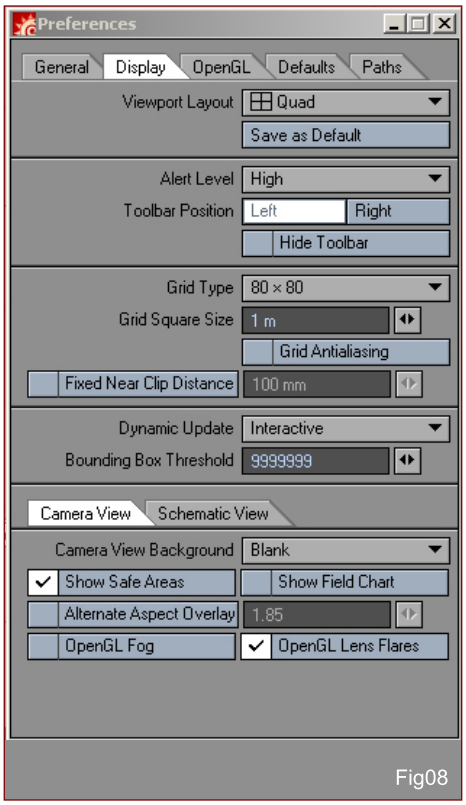


Fig08

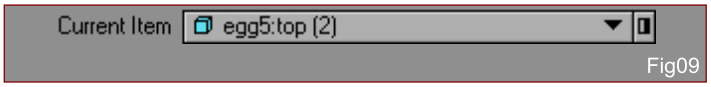


Fig09

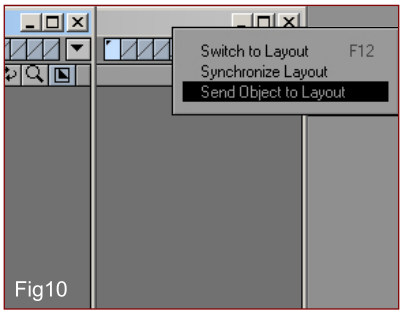
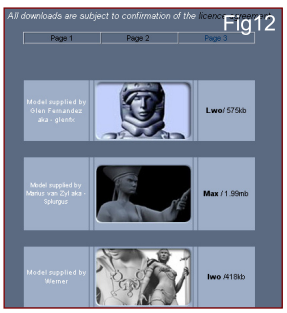


Fig10


Fig12

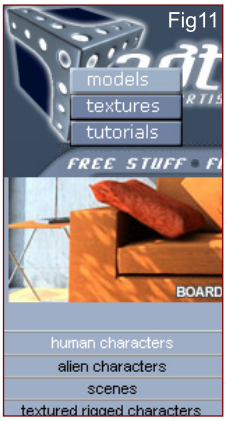


Fig11

pop-up menu. Now select the location of your object and press Open (Fig.13 & 14). This process will load an object and all of its layers into Layout. Be sure to save the Layout file also. To save a Layout scene, go again to the File drop-down button. Once pressed, it will show several saving options. **Note:** LightWave files are compatible with PC and MAC. LightWave's MAC version is identical to the PC version. The only difference is that the files inside Apple operating systems have no extension (LWO or LWS). I always give my LightWave files their corresponding extension, that way I can recognize them inside my PC (Fig.15).

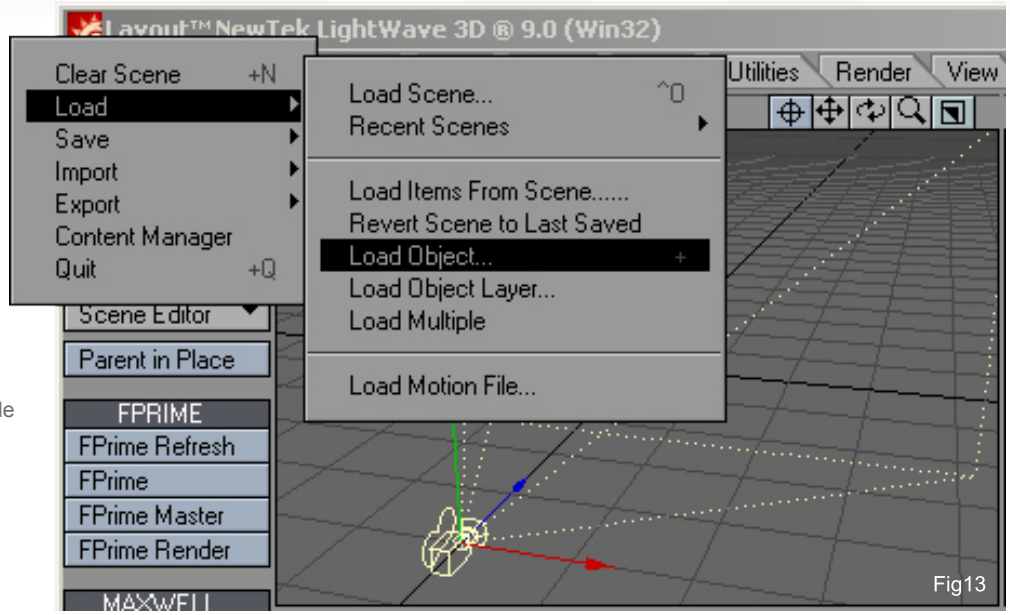


Fig13

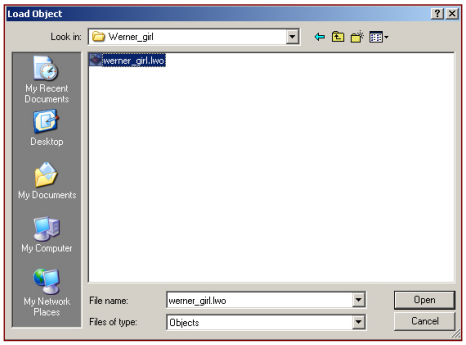


Fig14



Fig15

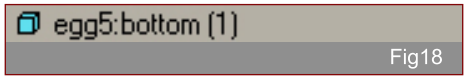


Fig18

Selecting Items by Category

Fig.16 is a screen-shot of the lower menu in Layout. This part of the interface has options that allow you to select objects by categories. The different types of items inside Layout are: Objects, Bones, Lights and Cameras. There is a button for each category. Clicking on it will restrict what the Current Item drop-down menu shows. In this case, I'm restricting the drop-down to show only objects. The Current Item drop-down is showing the object named "table" (Fig.16).



Fig16

Selecting Several Items

You can also select multiple objects. To the right of the Current Item drop-down menu there is a small button with a little square as its icon. Click on it to open a pop-up menu with a list of objects inside your scene. This menu allows us to have more control over what we are selecting. You can press <Shift> + <left click> in order to select multiple, consecutive items. You can press <Shift> + <Ctrl> in order to select multiple objects which are not consecutive. You can create selection sets, filter selections, or even find a specific item using the Find input text-box. There are also several other ways to manipulate your objects, which we will cover later on (Fig.17).

Naming Conventions

In the previous image you probably noticed that object names could be composed of more than letters. We have the use of the colon key, ':', and brackets, '()'. LightWave objects are composed of layers. When objects are imported inside Layout, it respects the division of layers of your object (Fig.18). Let's take for example 'egg5:bottom (1)'. The first part represents the name of the object. In this case the name is 'egg5'. If the object has more than one layer, Layout will show ':' followed by the name of the layer. The brackets with the number (1) represents the instance of that object inside Layout. You don't need to import an object into layout twice to have two copies of it. You can clone them, and for each clone Layout will assign a progressive number.

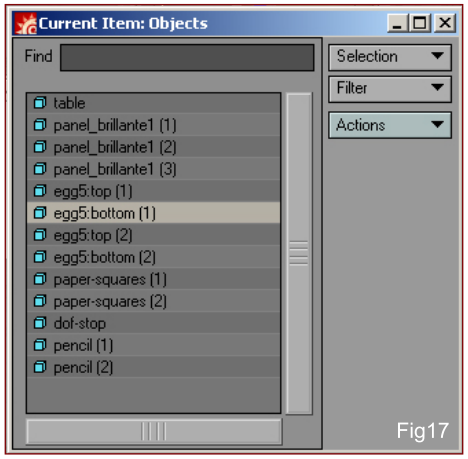
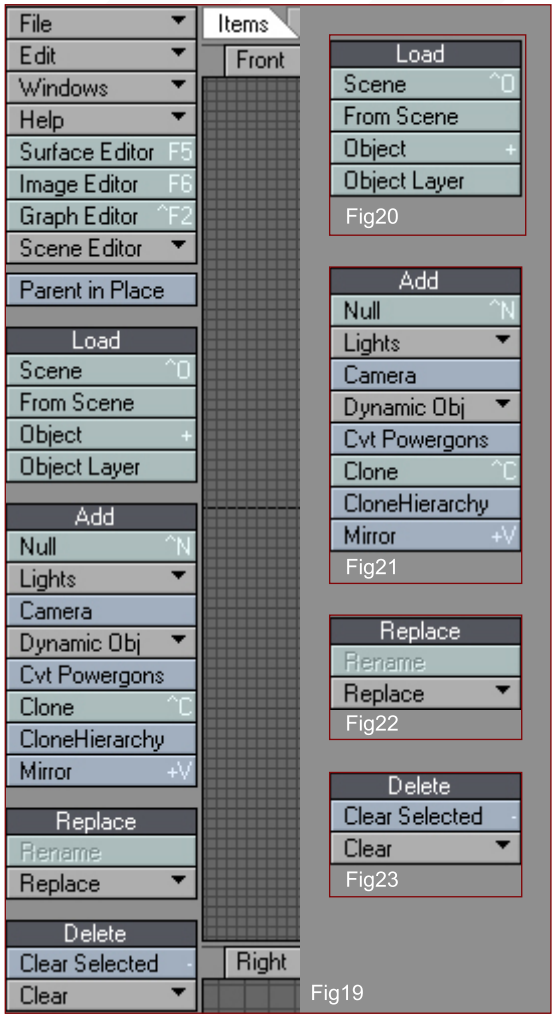
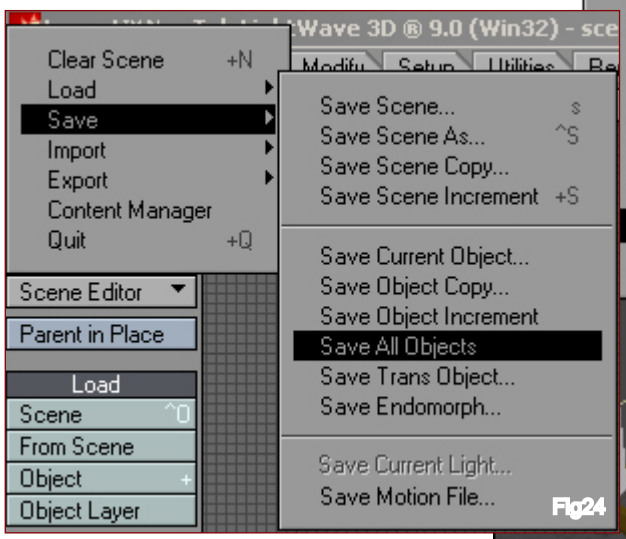


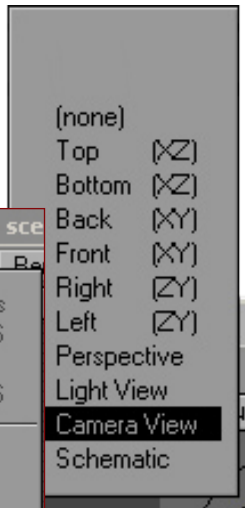
Fig17

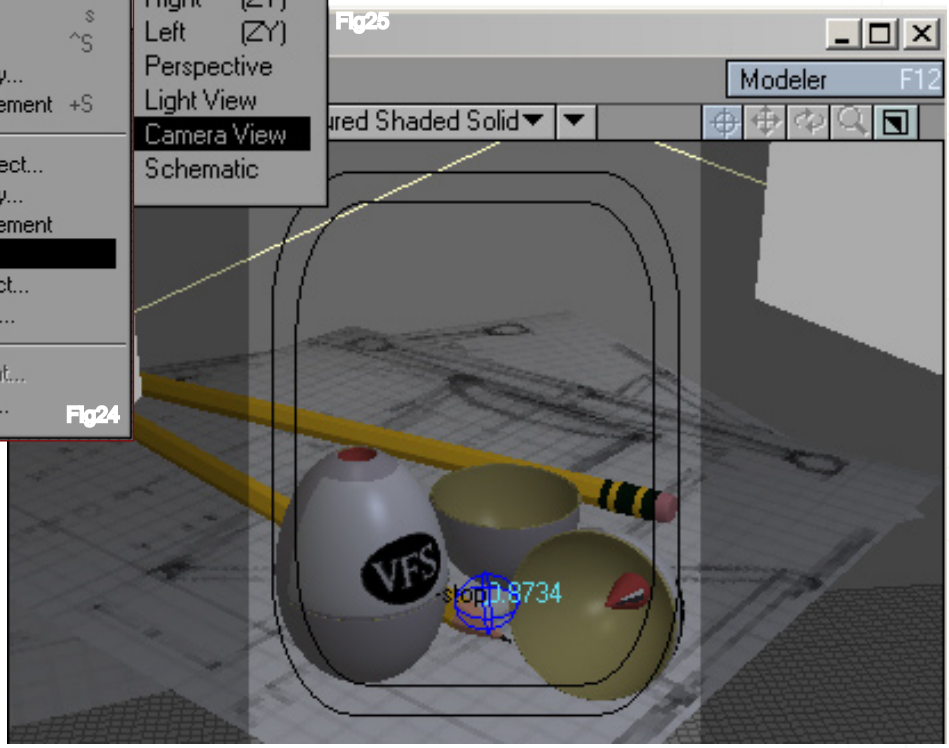
The Items Tab

The Items tab gathers buttons in four sections: Load, Add, Replace and Delete. These buttons will aid you in manipulating objects, lights, cameras, etc. (Fig.19). The first section is 'Load'. So far we saw how to load objects via









"Nulls", which we haven't seen yet. You can create copies of an object by pressing the Clone button. Clones will be made at the same position as the original, so make sure you move them as soon as they are created. If not, you can end up with multiple clones stacked on the same spot. The Lights drop-down menu will allow you to create lights in scenes. Pressing the Camera will create a new camera in the scene (Fig.21). Next comes the 'Replace' section. Its first button is 'Rename', which is used to rename elements such as lights and cameras. We then have a drop-down menu called 'Replace'. This one is very useful and comes in handy when you want to replace an object with a newer version, with less polygons or different surfaces, for example (Fig.22). There is also a 'Delete' section. You can delete one or many objects by selecting them and pressing 'Clear Selected'. Under it is a drop-down menu called 'Clear'. This drop-down allows you to delete all items of the same type: Objects, Cameras, Bones and Lights. It gives you a fast start in lighting, and this way you won't have to delete all the lights individually to start lighting from scratch. The same applies with other disciplines, such as rigging, where you would like to delete all of the Bones (Fig.23). **Note:** Surface settings are saved with the objects (LWO files) and not the scenes (LWS files). This is particularly important to remember when replacing objects. If you save a scene, the scene will be saved, but not the surface properties of the objects. We will learn how to save surfaces as different files by using the Surface Editor. For the moment, to save all the changes made on surfaces at any given time, you can press File > Save > Save All Objects. By saving objects, you save the surface settings of the object itself (Fig.24).

Viewport's Viewing Options

Each viewport can be customized. The first drop-down menu on the top-left of each viewport allows us to change the view from where we see our scene (Fig.25). **Orthogonal views:** The first 6 options correspond with the orthogonal views: Top, Bottom, Back, Front, Right, Left. Orthogonal views work great when the File drop-down menu. Here you can find the same function. This button makes the process easier and faster. The same applies to other functions, such as loading objects From Scene, or a specific Object Layer (Fig.20). The next section is 'Add'. In it you will find buttons to add lights, cameras and other elements called

you need to position items with great precision over a certain axis. In Fig.26 I'm positioning all objects over the same height. **Perspective view:** This view allows you to move freely in all 3 axes, and allows you to see things in perspective. Therefore it's great to see how the whole arrangement of a scene. I personally use it to position Lights in my scene (Fig.27). **Camera view:** This view shows what your camera is looking at. By default, every scene in Layout has a camera. You can add more than one camera to each scene. We will get more into cameras later on, since there is a lot to tell about them (Fig.28). **Schematic view:** This view shows all the items inside our scene in a diagram. It is easier to find relationships between items in our scene by using this view. It is especially important for riggers. In lighting it can help us find what our lights are pointing at. There are many uses for this view, but it will mainly help you to understand the relationships between items inside your scene. In the following example, the left view shows a viewport under the Schematic view. There are a lot of rectangles with colours and names on them. There are also lines that represent relationships. Such lines are also shown on the right Camera View viewport. In this scene example, it is easier for me to select lights using the Schematic viewport, than using the Current Item drop-down list or any other viewport. We will get into managing the schematic view further on. It constitutes a useful tool when dealing with scenes full of objects and lights. (Fig 29).

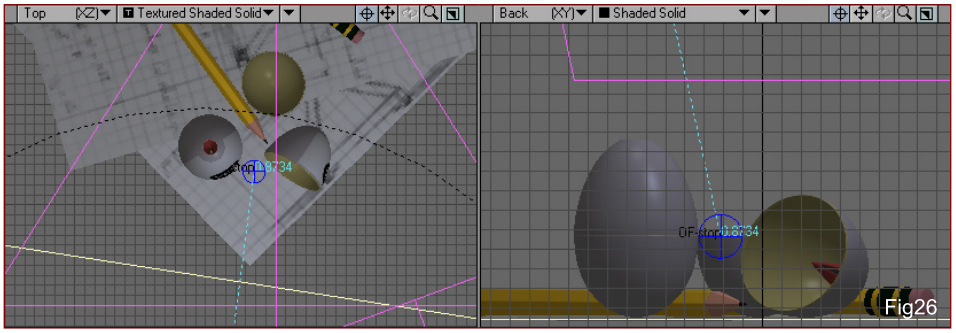


Fig26

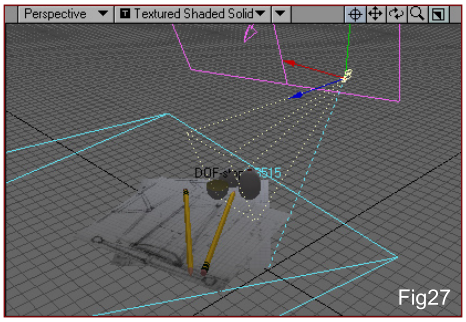


Fig27

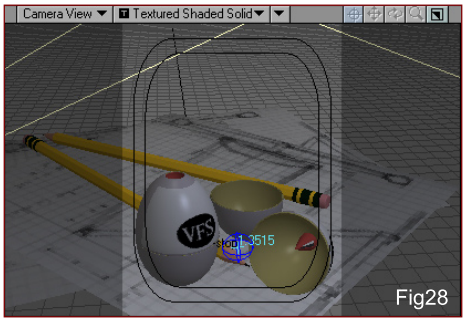


Fig28

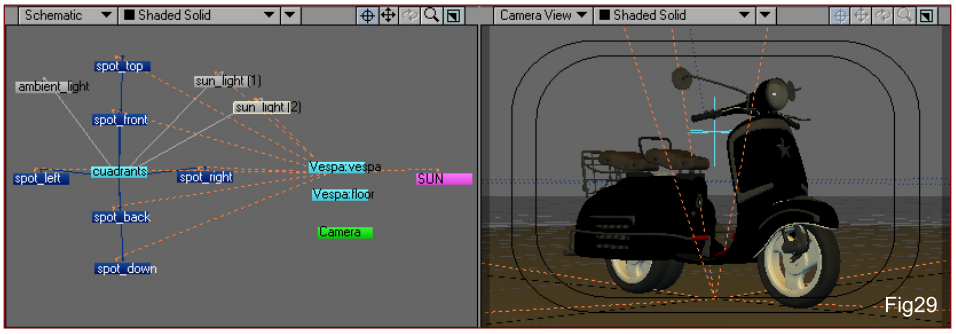


Fig29

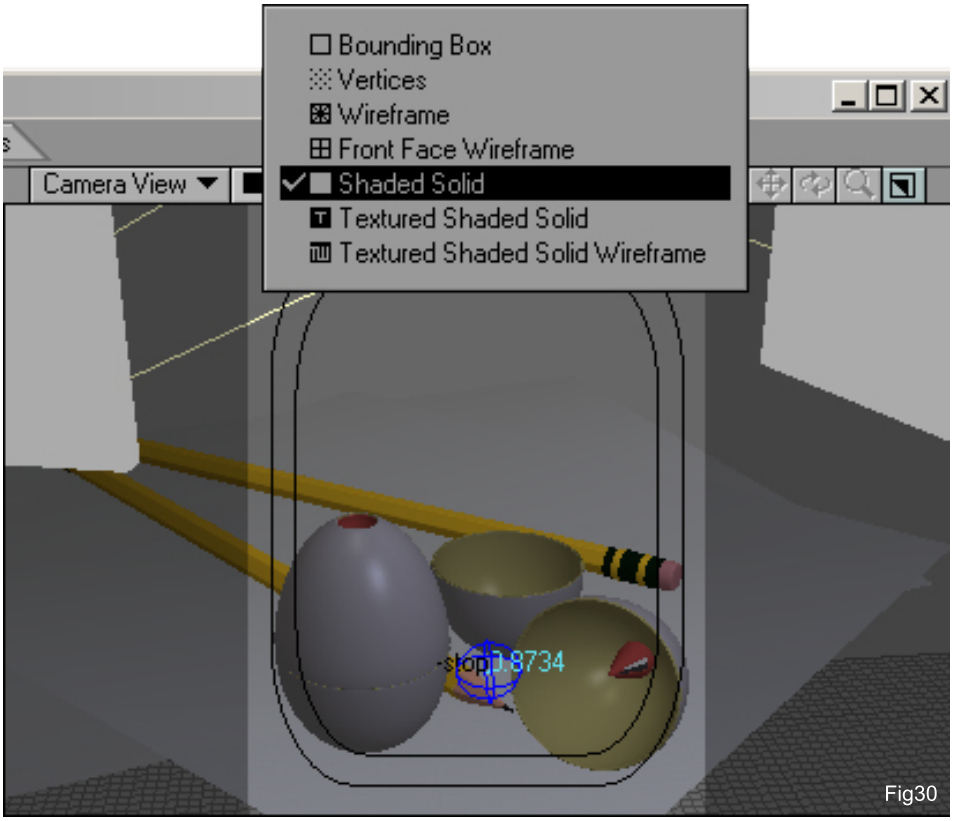


Fig30

Viewports Shading Options

The next drop-down menu at the viewports shows modes in which you can view objects. Objects consist of polygons. Such polygons will have surfaces. Surfaces contain textures. How many of these features do you want to preview? That is what this drop down menu allows you to specify. It allows you to filter how much information about the polygons and its surfaces (and how they react to light) is shown. The more you show, the more processor intensive will it be for your hardware. The next

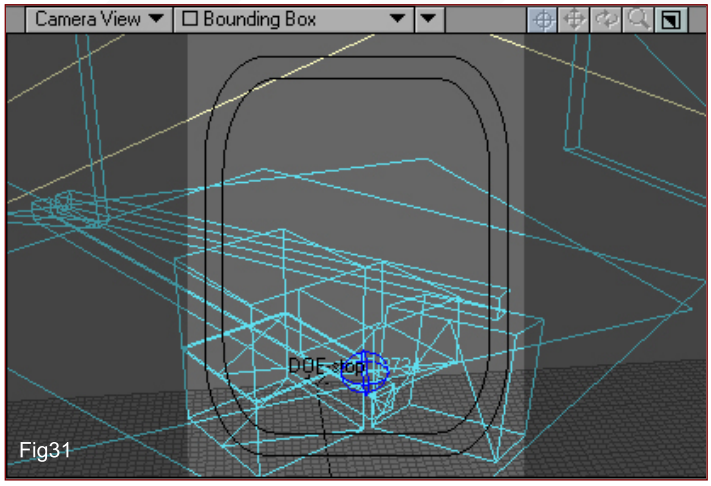


Fig31

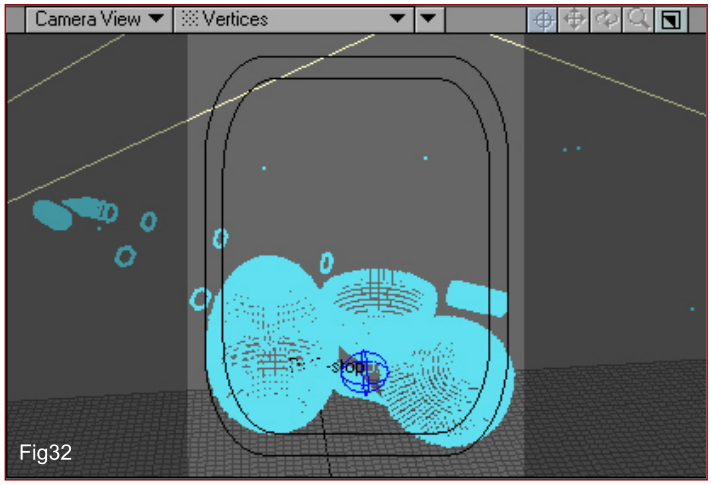


Fig32

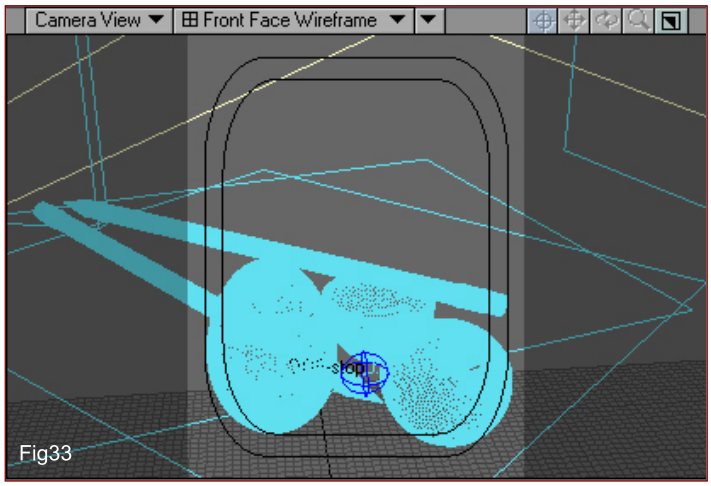


Fig33

image shows the 7 main modes for viewing objects. In the following example I'm selecting the mode named "Shaded Solid". I will now explain all the modes and some tips for using them (Fig.30). **Bounding box:** This allows you to see a box for each layer of each object inside the scene. That's correct: you get one bounding box per layer. Bounding boxes for objects will be shown in blue. When you select one of them, it turns yellow. It's a very useful mode to start positioning objects inside Layout, and is the least processor intensive mode (Fig.31). **Vertices:** This shows all the vertices from your objects in the viewport. If an object is selected, its vertices will turn from blue to yellow. This way you know what you are selecting. It is more processor intensive than the Bounding Box mode, however it allows you to see a raw form of the object. I normally use it to refine the positioning of my objects (Fig.32). **Wireframe:** This shows the wires of your object - both front and back (Fig.33). **Front Face Wireframes:** This is similar to the Wireframe mode, however it shows the frontal wireframes only. Most of the time you don't need to see all the wireframes from the back of the object, so I personally prefer this mode over the previous wireframe mode (Fig.34). **Shaded Solid:** In the previous modes we can see the object and its wires but we cannot see the surfaces and textures applied to the objects. This mode allows us to see the main surface properties of objects, however it will not show any hand-painted texture maps being applied. This mode allow us to create and preview aesthetically pleasing camera compositions, but is by no means a way of previewing complex textures (Fig.35). **Textured Shaded Solid:** This view allows us to see the colours and textures applied to objects. It works great to test if hand-painted textures are applied correctly. I personally use it to find and correct stretched texture maps (Fig.36). **Textured Shaded Solid Wireframe:** This is a combination of the modes 'Textured Shaded Solid' and 'Front Face Wireframe'. It allows you to see the wireframes, textures and main colours (Fig.37).

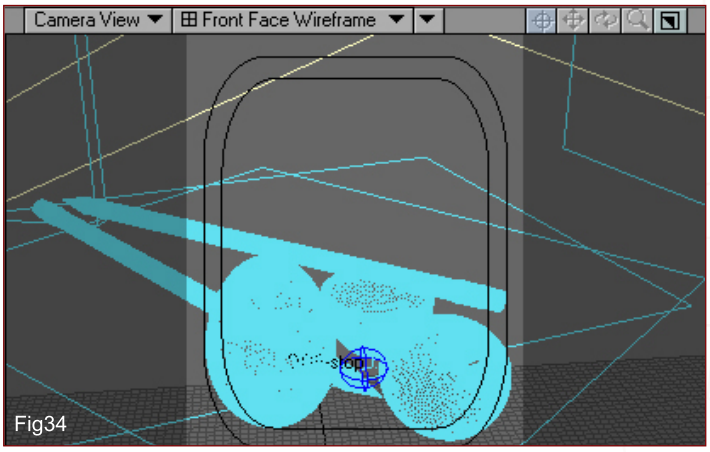


Fig34

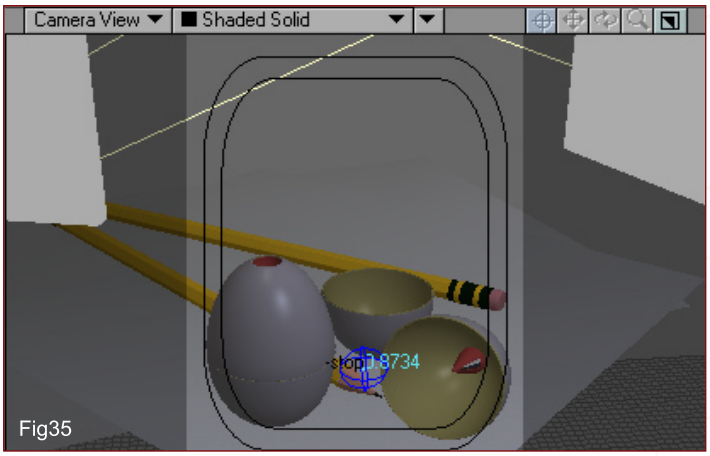


Fig35

MOVING AROUND YOUR VIEWPORTS

We have seen so far the modes to which you can set your viewports. However, we have not seen how to move yourself inside those views. Moving can be done via icons or shortcuts. You can move independently at each viewport by using the buttons at the left of each viewport (Fig.38). These options are located on each viewport and you can find them at the top-right of each viewport. From left to right the names of these tools are: Target, Translate, Rotate, Zoom, and Expand. Depending on the viewing mode, certain options will not be available to you. Orthogonal views will not allow you to rotate the view. The perspective mode will allow the use of all the buttons (Fig.39). Moving inside your viewports using these buttons is troublesome and time consuming. Here are the shortcuts for you to memorize, and to help you move faster in your 3D space: **Zoom in/out =** <Ctrl>+ <Alt>+ <Left Click>; **Rotate =** <Alt> + <Left Click>; **Translate =** <Shift> + <Alt>+ <Left Click>. **Note:** These shortcuts should be used a long with a left-click (hold) move.



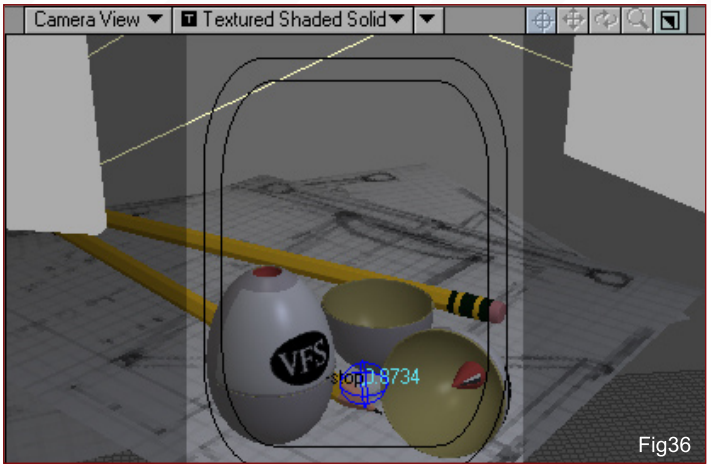


Fig36

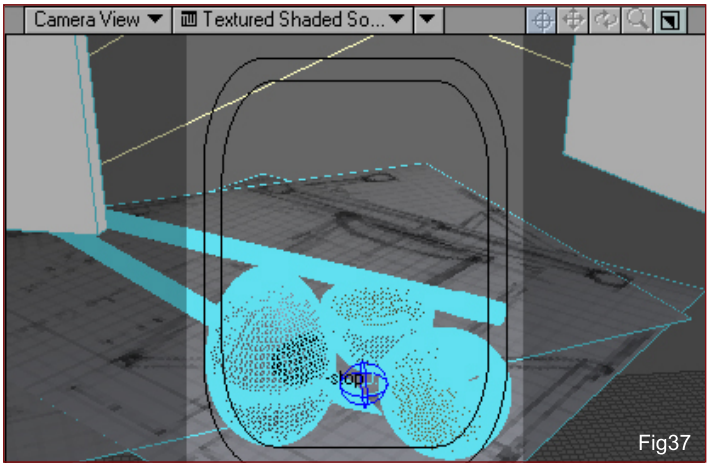


Fig37

MOVING YOUR VIEWPORTS

You start with a single viewport by default. As seen before, you can further customize the quantity and arrangement of viewports. Press <D> to open the Preferences window, then select the desired Viewport Layout from the Display Tab. We can further customize the size of our viewports in Layout. The cursor changes when you position it at the edges of viewports. Then you can drag and move the edges of the viewports to vary their size.

CONCLUSION

During this chapter we've analyzed some basic interface tools inside Layout. There are more basic tools inside this program but the ones explained are used to load, move, and visualize objects inside Layout scenes. It's essential for you to know this before we explain how to light and texture objects. The next chapter will cover the different lighting and texturing tools inside LightWave. Next month (March Issue) will be: Texturing Basics & Lighting Basics.

I'd like to say big thanks to the following: *Galaxy image: www.christensenastroimages.com; Mona Lisa image: www.ibiblio.org; Batman and the Joker: Warner Brothers; Kill bill: Buena vista international; Leonardo da Vinci: www.visi.com; The Creation of Adam: www.abc-people.com : Vespa LWO model: Tate Chmielewski.*

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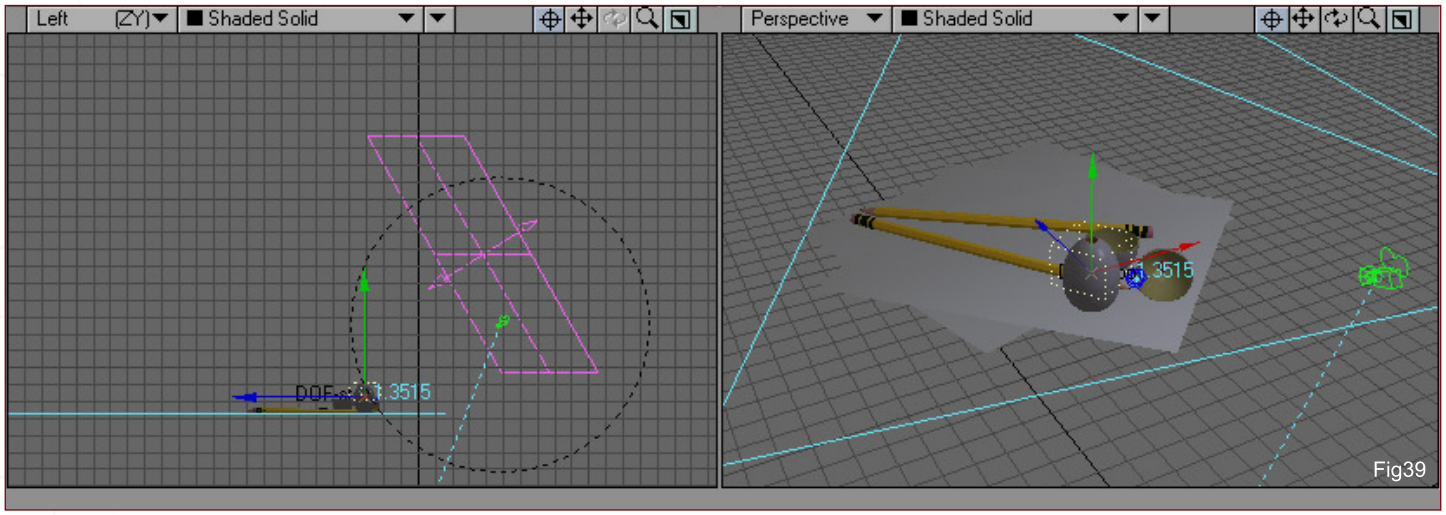
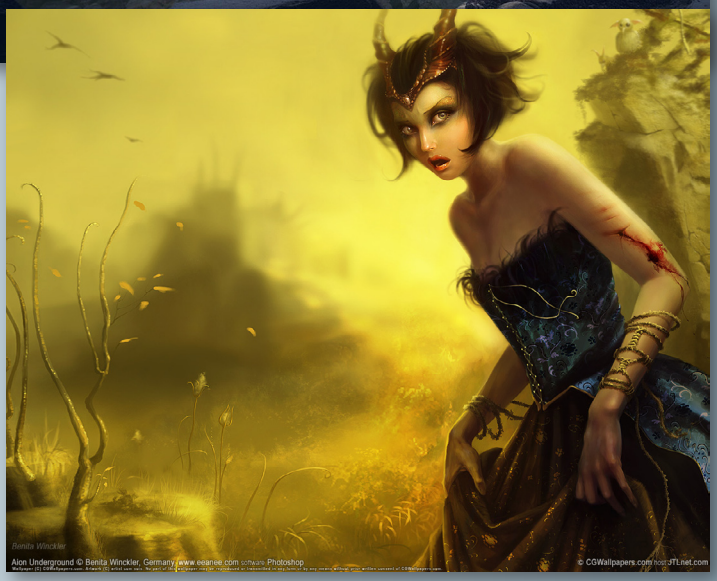


Fig39

cgwallpapers.com competition







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RTSquare

Modelled by D.Sign and rendered by Ulrich Duvent

Living Room

using RTSquare

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Living Room using RTSquare

CREATED IN:

RTSquare, 3D Studio Max.

This tutorial will explain in a few steps in how to obtain a realistic render of a scene in 3D Studio Max, using the RTSquare plug-in.

SHADOWS (Fig.01)

For the moment, the light sources are only one directional light and an omni directional light. By choosing the preset «preview», you will notice that the option “Compute shadow” is activated. It is also possible to choose the render of shadows by ticking the “Compute shadow” box. In the preset preview, the shadow parameters are set to the lowest. At this level, the interface options can be seen in Fig.02. Place your cursor on camera 5. The render of the scene using these parameters gives the image to the right (Fig.03).

In order to render a more realistic scene we are going to create soft shadows, the procedure of which is as follows. The dispersion parameter of the interface gives softer shadows, however this should not exceed a certain size as the dispersion is calculated from the size of the scene. For a scene like this one, a dispersion of 10 is sufficient. If the dispersion value is too high, the shadows will spread on the entire scene. Therefore, set the quality of the shadows to 24. The higher this value is, the more realistic the shadows are. Finally, RTSquare has a «noise» option which allows you to give your shadows more effect.

It is up to you to judge the utility of this parameter on the scene. I put a value of 0,1 for

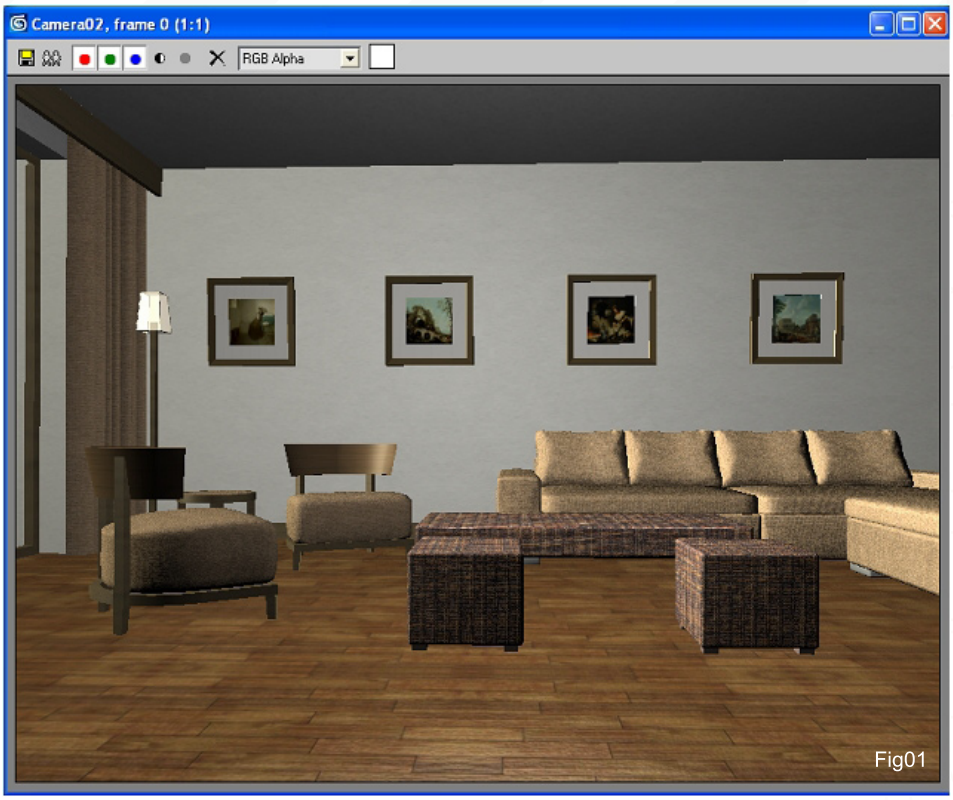


Fig01

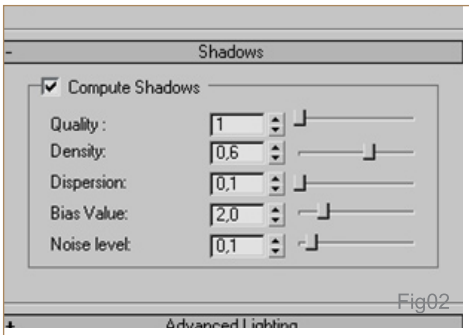


Fig02

Fig03

the noise as I did not need any in this scene. At this stage, the interface can be seen in Fig.04, and the result in Fig.05.

AREALIGHT/SKYLIGHT

As you can see, there is some light missing in this living room. There are two lighting methods: the skylight or the arealight. Again it's up to you to choose whichever you like best. The skylight technique allows you to create the light of day in a realistic manner by covering the scene with a light dome. Firstly, we have to place the light source. The best thing is to put it behind the large window on the left of the living room. On the interface, it's possible to strictly regulate the position of the skylight. To do this we have to use the views in 3D Studio Max. Here, we are going to use the lateral views and the top view (Fig.06 & 07). From the Top view we can see the scene from above and can therefore determine the X and Y coordinates of the skylight with the help of the mouse cursor. Place the cursor on the window level outside the living room. The X and Y coordinates can be seen below, in Fig.08.

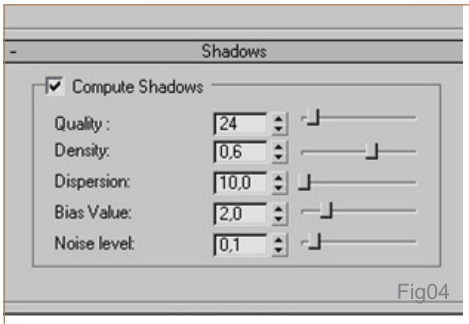


Fig04

Fig05

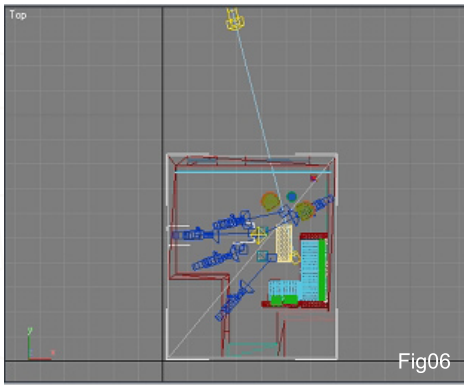
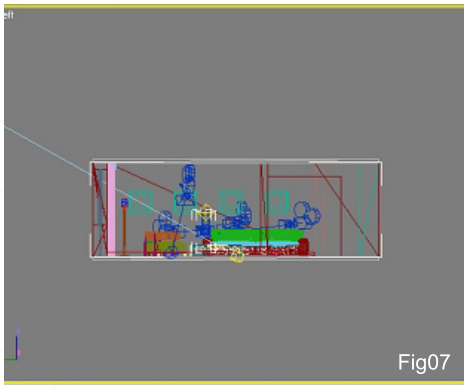


Fig06


Fig07

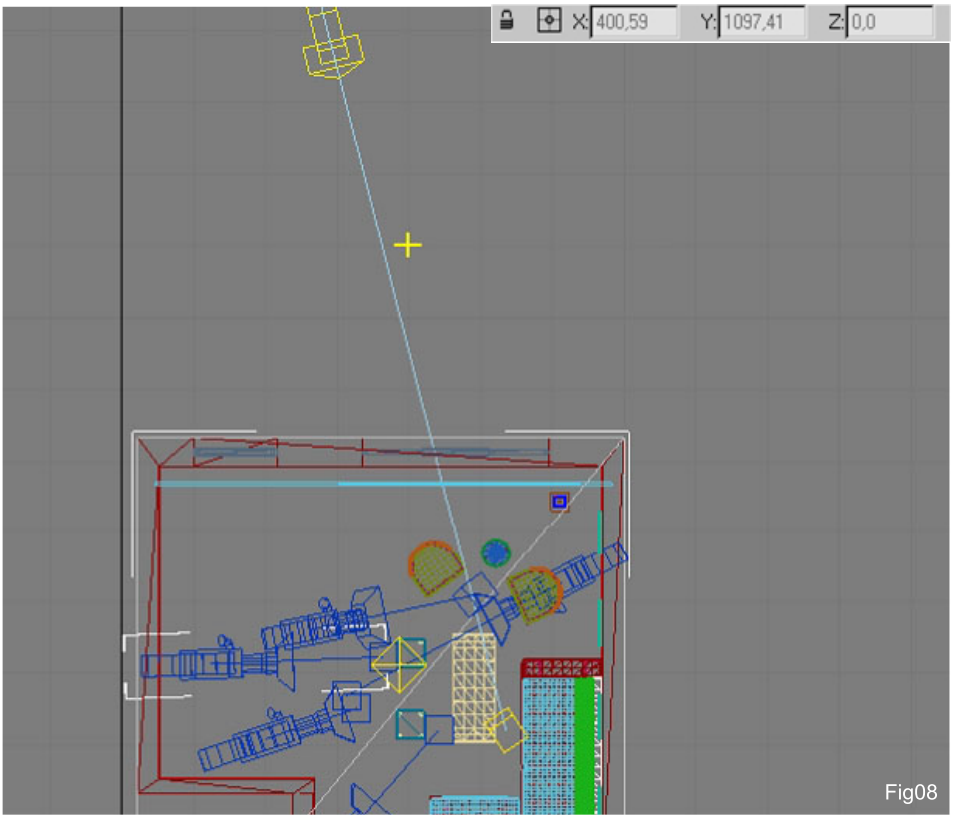


Fig08

To determine the height of the skylight or the coordinate Z we go to one of the lateral views. We are going to place the skylight at half the height of the living room. Take note of the coordinates that appear on the interface (Fig.09). Two parameters are left to be defined. You have a choice concerning the intensity of the skylight, which depends on the time of day. In this scene we are going to put an intensity value of 1,0 to simulate a beautiful afternoon sky (the value -1 will simulate mostly evening light, and morning light can be simulated with higher values). The scale or dome size will be defined to 0,2 in order to let the light pass only through the living room window. A scale of 1 represents the size of the scene multiplied by 2. Knowing this allows you to concentrate your light on specific areas. At this stage the parameters can be seen in Fig.10 & 11. Before starting the rendering process using skylight, deactivate the omni directional light (temporary omni). You should then obtain the image, as seen in Fig.12. Finally, the colour of the light is defined by the environment. In order to set the diffuse value of this skylight, it is sufficient to go to rendering then

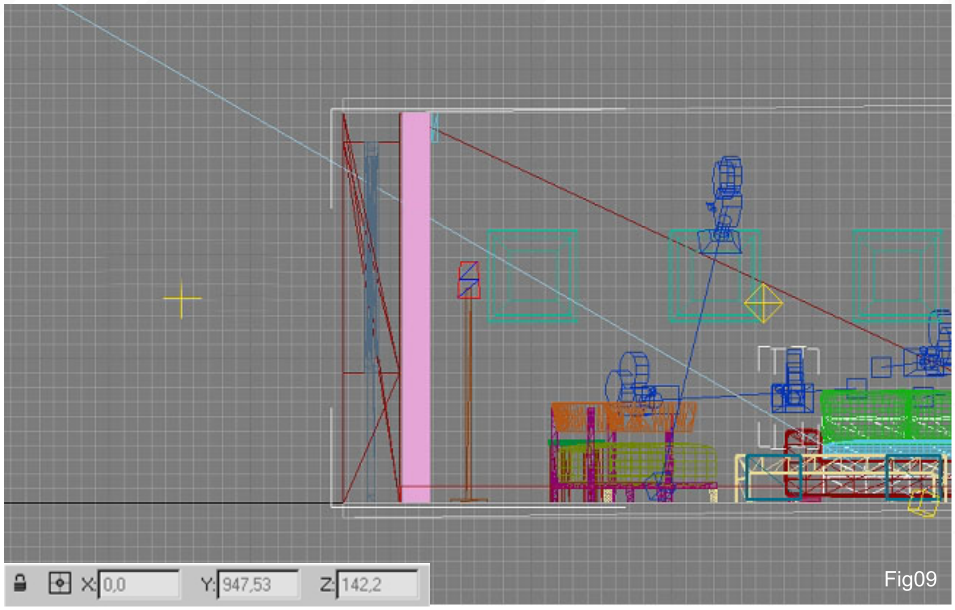


Fig09

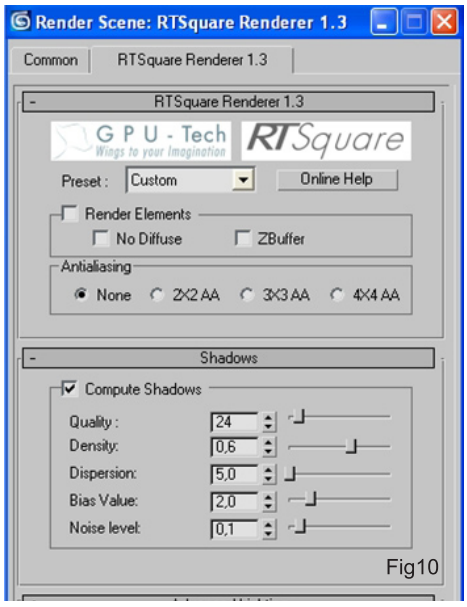


Fig10

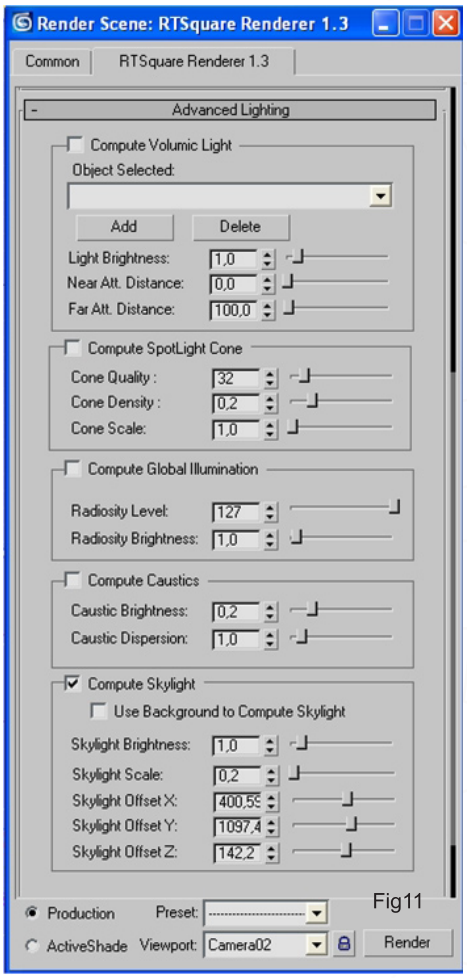


Fig11


Fig12

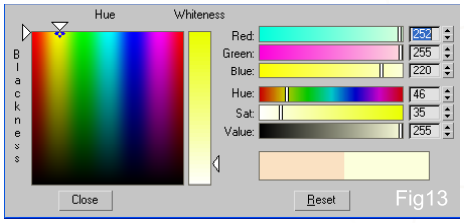


Fig13

environment then choose a slightly yellow colour (Fig.13). However, it is possible to use the colours of a texture representing the environment. To do this, use a cube map file (.dds) as a texture. We are going to use the image of a sky, «GrayHorizon. dds» (Fig.14-16). On the interface choose the “Compute background” option (Fig.17).

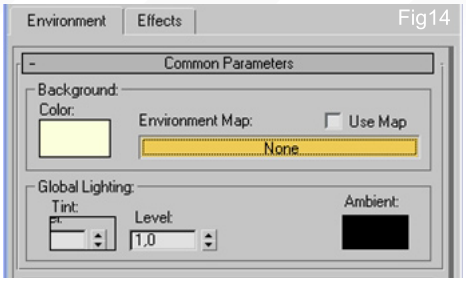


Fig14

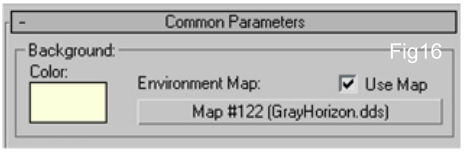


Fig16

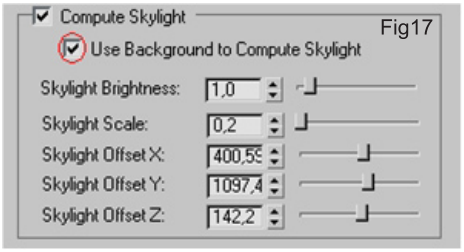


Fig17

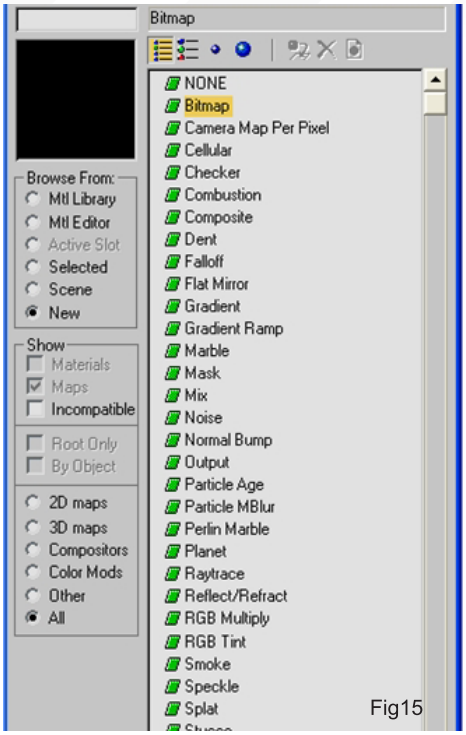


Fig15

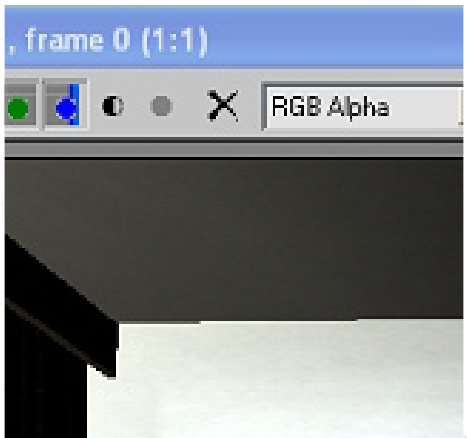
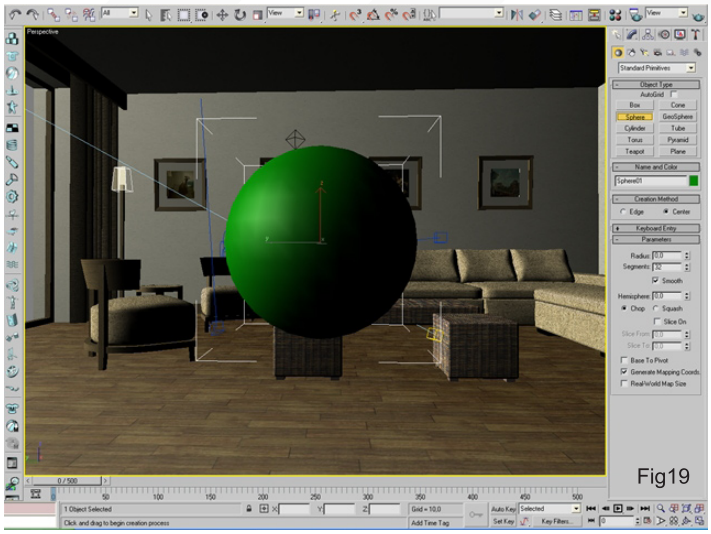
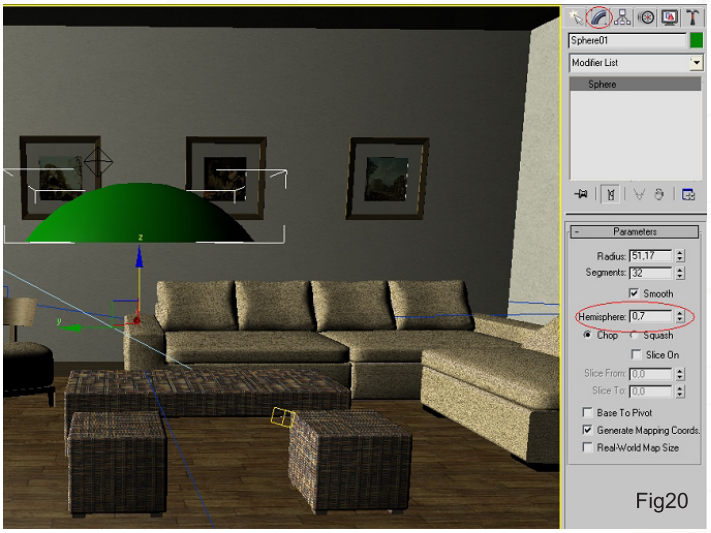
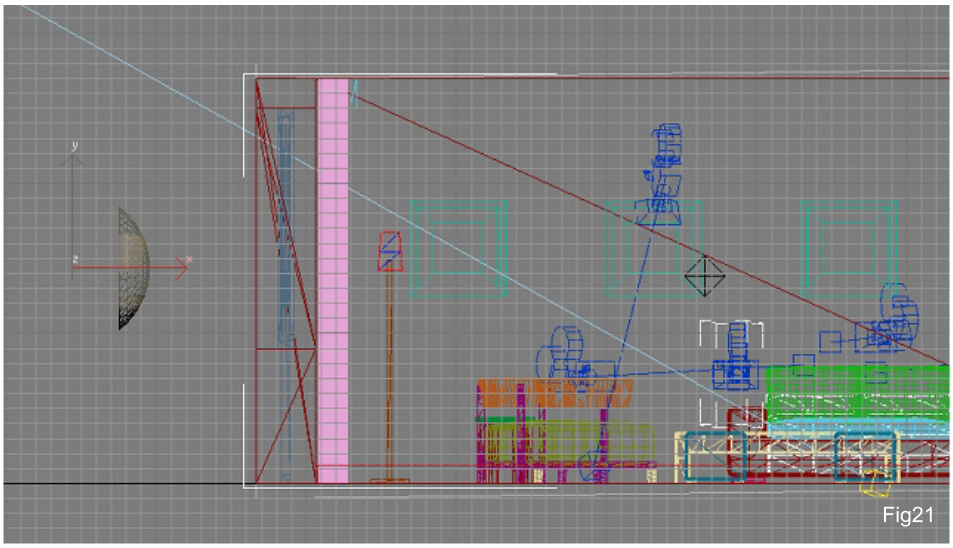



Fig18


Fig19


Fig20

The result is shown in Fig.18. The second method for lighting is the Arealight. For me, this is the easiest technique to use and gives more photo-realistic renders. Firstly, let us create our arealight. We will make a simple primitive: a sphere. In order to have a light source that can represent the light of day, we will modify the hemisphere of the sphere to 70% (Fig.19+20). Therefore, in order to position it correctly behind our window, we will rotate it by 90° around the X axis to have it parallel to the window. We will then place this area light (hemisphere) behind the window using the translation tool (Fig.21). Keep in mind that the number of lights of the arealight will be determined by the number of faces of the hemisphere - in this case 320 faces. In order to define this hemisphere as the area light in RTSquare, it suffices to open the interface; click on your hemisphere and on the arealight part of the interface; click on the «Add» button. Normally the name of the object will be marked on the interface. We will also set the intensity to 3 (Fig.22). With these settings we obtain the image to the right (Fig.23).


Fig21

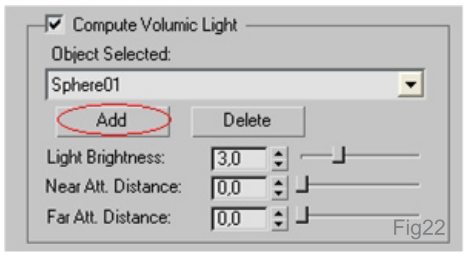
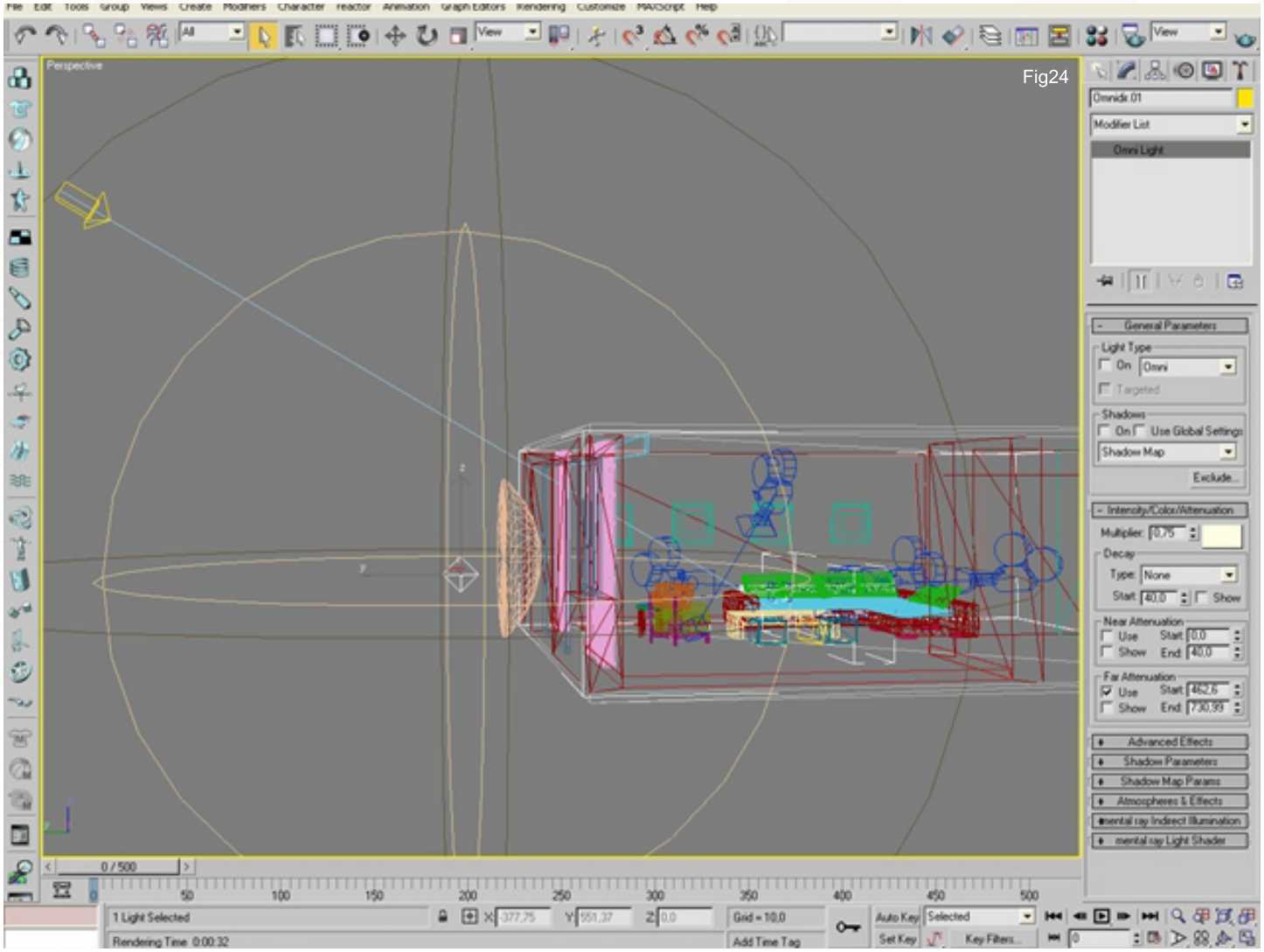
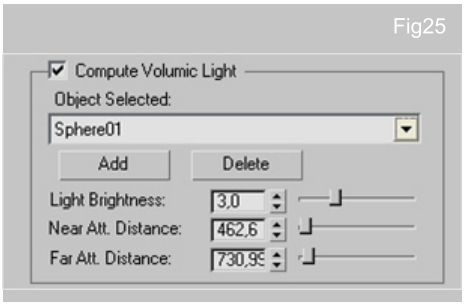


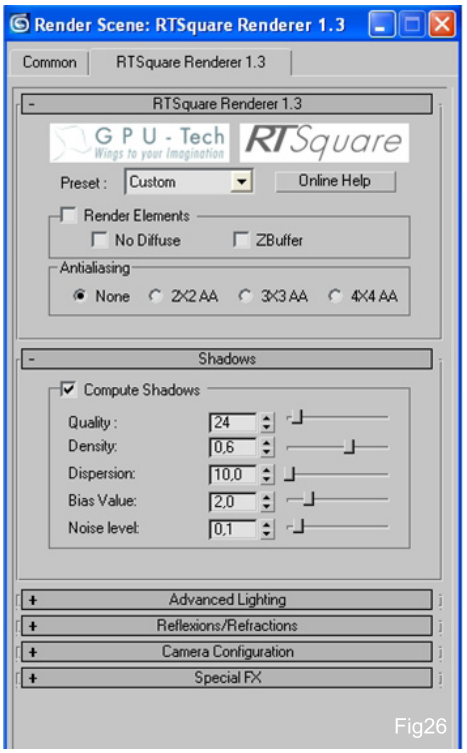
Fig22


Fig23



The result is satisfactory. However, what is possible with the area light, and not with the skylight, is the possibility of attenuating the light source. To do this, two parameters must be determined, between the arealight and the near plane. We will have the distance on which the light sources illuminate to the maximum. Between the near plane and the far plane, we will have a linear attenuation of the light. To better explain this, we will create a temporary omni directional light, which we will place at the same position as the area light. Thereafter, thanks to the modification tab, we can represent the near plane and the far plane on the screen. To do this, tick "show" in the "attenuation" menu of the omni directional. There are two spheres shown on the screen. The highly illuminated sphere is the near plane, and the darker sphere the far plane (Fig.24). We can then regulate the attenuation of the arealight by copying the omni's attenuation values on the interface. Here, an attenuation on the near plane of 462,6, and on the far plane 730,99, will give a nice render. It is up to you to decide what is best for your scene. The arealight values are shown in Fig.25. At this stage, the interface is shown in Fig.26 & 27. The resulting image is Fig.28.





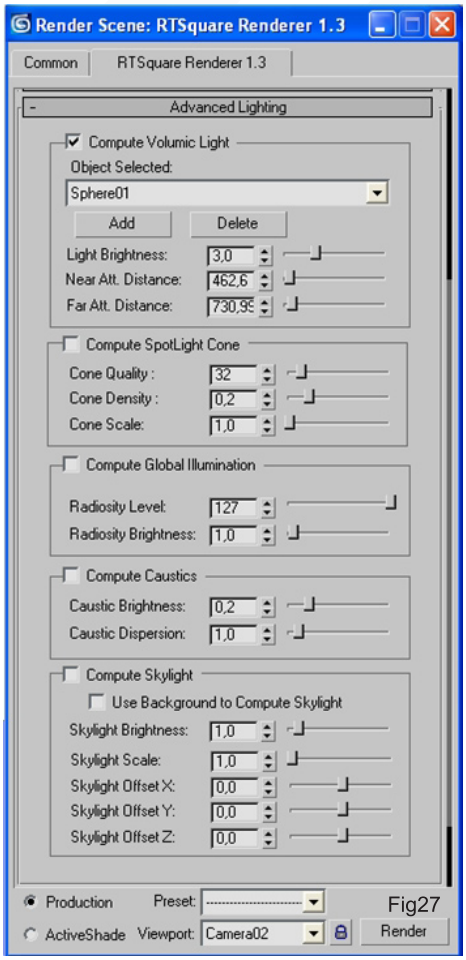


Fig27


Fig28


Fig29

GLOBAL ILLUMINATION (G.I)

The image obtained so far is now becoming realistic. However, some parts of the living room are still too dark. We'll now use global illumination - a technique that allows the simulation of the reflection of light on the walls and on objects. Actually, in real life, an object that receives light will reflect it on other objects in the scene. For example, a white light illuminates a red cube. This cube will reflect on other objects part of the light it has received. The reflected light will be red. Going back to our living room, by choosing the "compute global illumination" option in our interface, the process described above will be executed and the dark parts of the living room will become just a bad souvenir. In our case we will take an intensity of 1, which is already quite high (Fig.29).

REFLECTIONS

There is only one more thing missing in our image - the reflection of objects on the floor. To do this simply choose «Compute Reflections» to obtain reflections. In order to get more realistic reflections we will attenuate them. For this we choose the option «Blurry Reflections» and set the corresponding values. The higher the values, the stronger the attenuation (Fig.30).

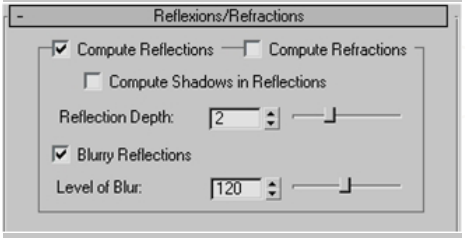


Fig30

ANTIALIASING

You must by now have noticed the jagged edges of the objects in the living room (Fig.31). This is known as aliasing. In our case a simple antialias of 2x2 allows us to solve the problem (Fig.32).

Scene Modeller:
BRANKO JOVANOVIC a.k.a.
D.Sign: d.sign@sezampro.yu
Render Artist: ULRICH DUVENT

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nicolas.vromant@gputech.com

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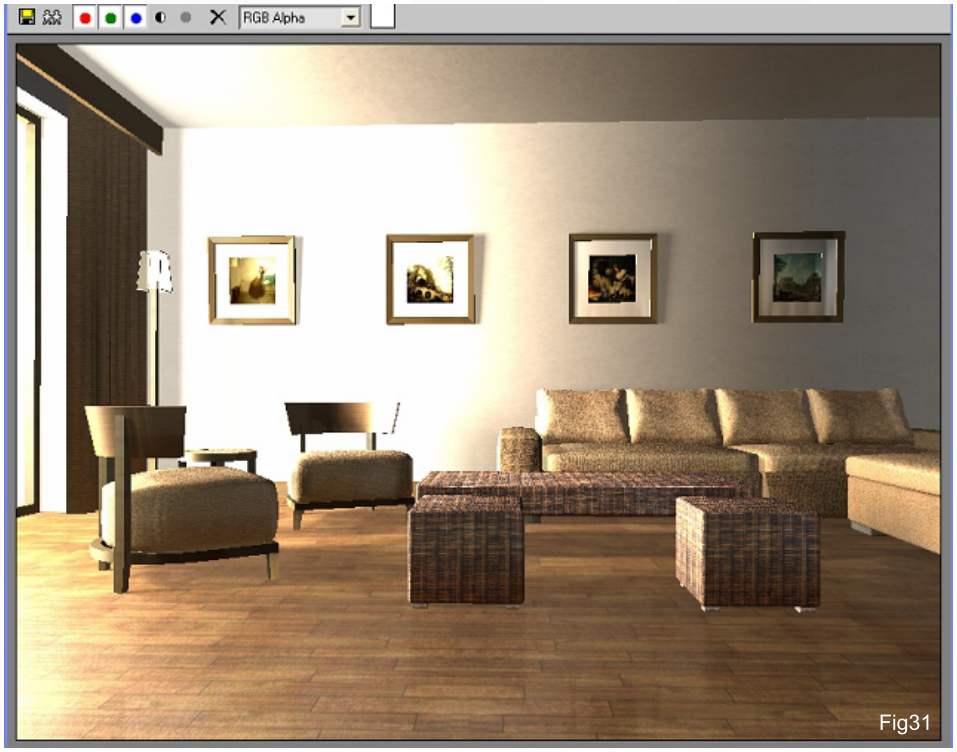


Fig31


Fig32

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ZOO PUBLISHING



In this Making Of, you can find out how Marcin made his rather suprised looking character featured in this work, “Madness”...



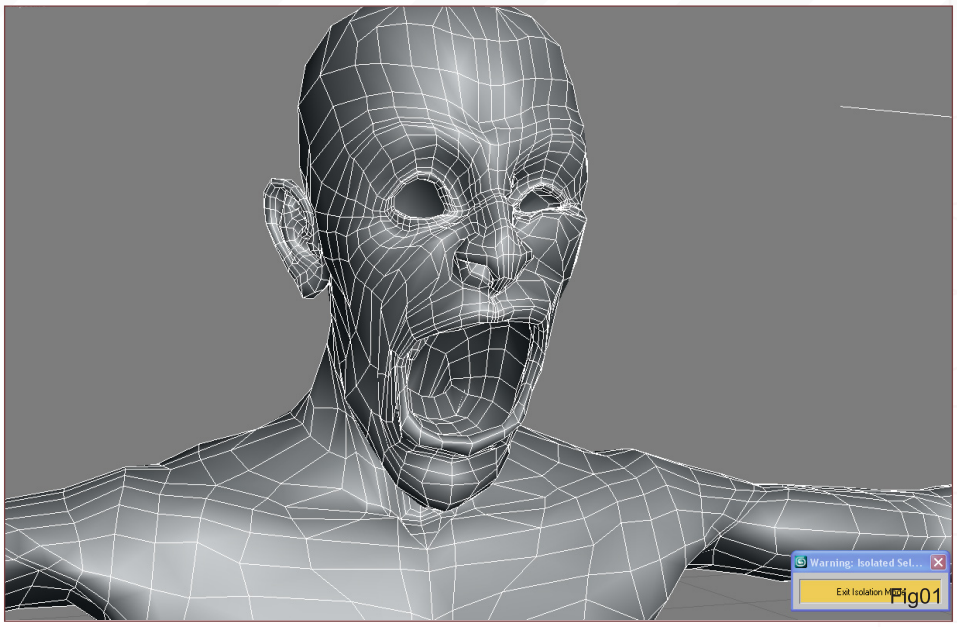
madness

CREATED IN:

3D Studio Max 8, ZBrush and Photoshop

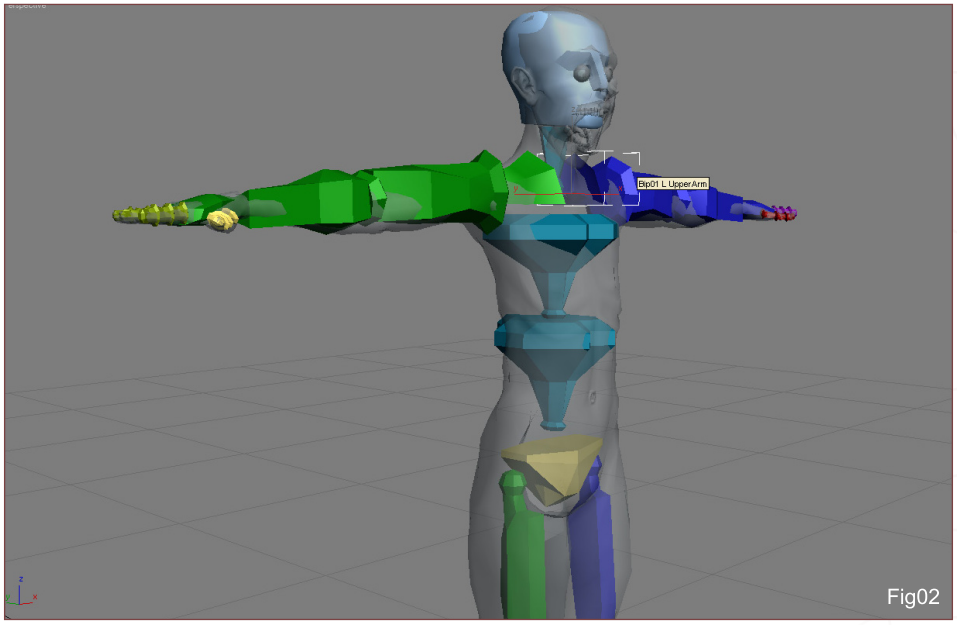
OVERVIEW

Several softwares were used to create the "Madness" image. The base mesh was prepared in 3D Studio Max 8. I tried to capture the facial expression that accompanies screaming - to catch the grimace at the sight of something really frightening; something, that changes one's life forever. In order to show this fear, I decided to model not only a suitable facial expression, but also the peculiar defensive pose of the whole body. Arms were also arranged in a very specific way, with the right hand trying to protect the head, and the left unconsciously lifted up and pressed to the cheek (Fig.01).



PREPARATIONS IN MAX

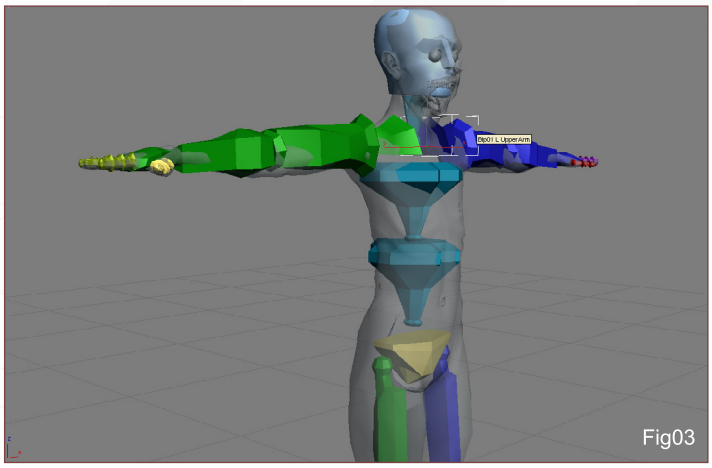
I set the figure in the 'T' position. This will allow us to prepare it for further rigging. Taking care of the smallest details, I worked on the upper part of the body, i.e. from the waist up, ignoring the legs altogether, as originally the frame I had in mind was to be a half-view. Finally, I chose the close frame, with virtually only the head visible in the picture. In addition, I modelled the eyes, tongue, gums and teeth. Then, after resetting the mesh (Reset XForm), I proceeded to attach the virtual skeleton to my figure. I used the biped animation system of Max, scaling the bones to give them the approximate shape of the figure. In a moment this would facilitate the bone wagging. The next phase was ascribing the skin modifier, which allows you to deform the mesh by means of the bones. We tick the skin modifier in the stack, and in its options we add the bones ('add bones'). We select all the bones of the biped and proceed to the next phase, i.e. wagging. This is done with the help of the 'edit envelope' button. I use the method of painting

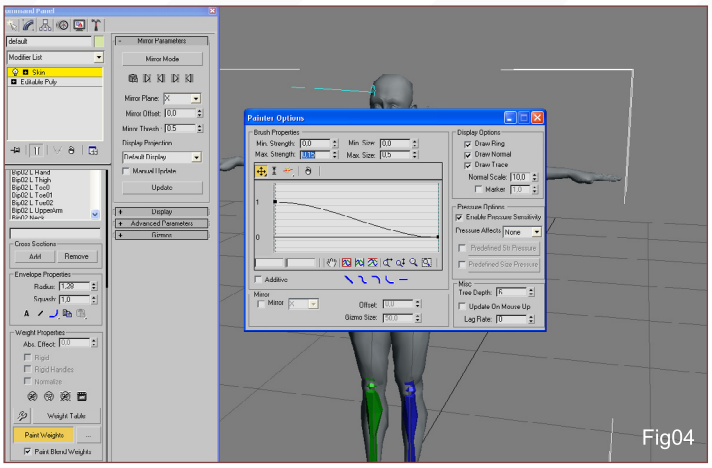


the envelopes along the mesh. In the Painter Options I set the Max Strength at 0.15, and Max Size at 0.5. Painting along the mesh, I wag the appropriate bones. The blue areas mark the places of the smallest impact of the bones on the mesh (about 0.1), while the red colour shows the greatest (c. 1.0). All the intermediate colours, such as yellow or orange, proportionally indicate all the values from 0.1 to 1.0. Then I delete the lower part of the body. Wagged in this way, the figure is ready to be exported to ZBrush (Fig.02, Fig.03 and Fig.04).

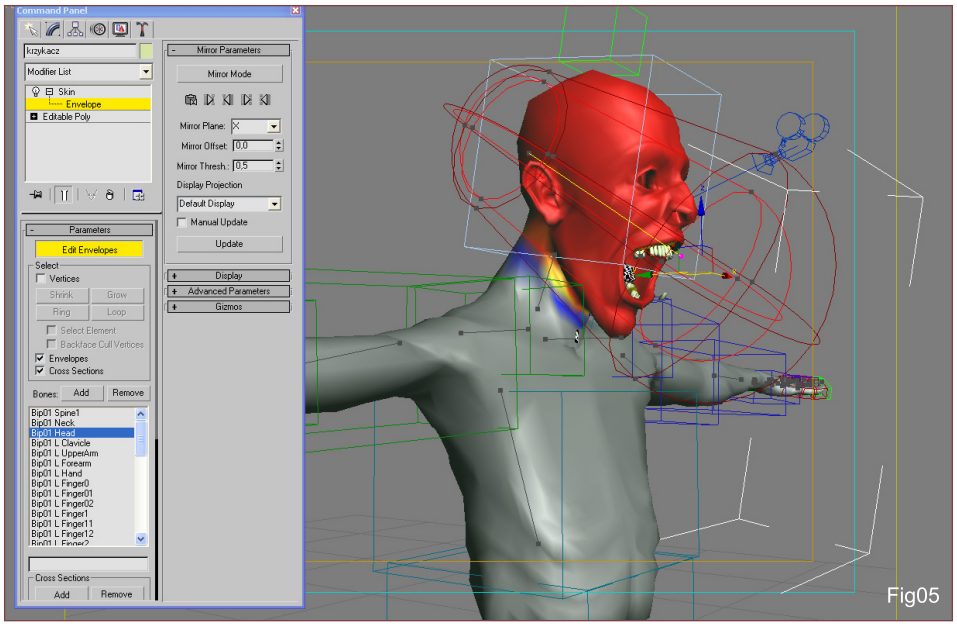
MODELLING IN ZBRUSH

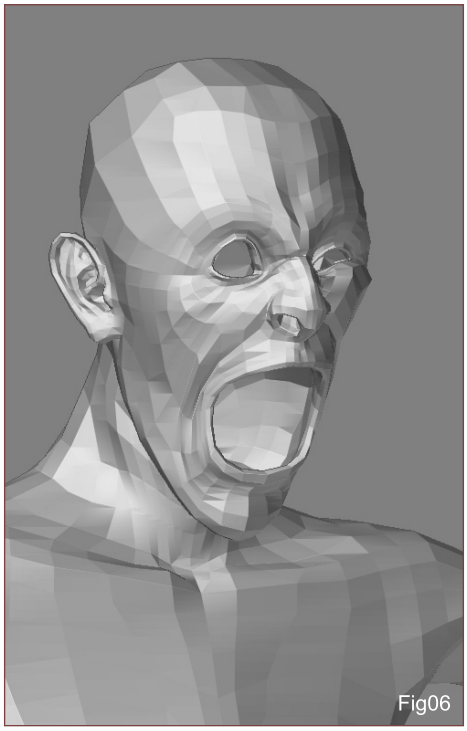
ZBrush software is a very flexible tool for graphic artists, allowing you to model objects easily and quickly. It also has suitable implements to create displaces and bump maps; by means of the 'projection' option it is also possible to paint textures in Photoshop. So, I import the figure ('import') and proceed to model the details. I thicken the figure, adding more and more wrinkles, until the fourth level is reached ('Tool>Geometry>Sdiv 4'). During this phase of mesh thickening, I start modelling the wrinkles, pores and other nuances of the facial skin, using the Projection Master, with only the

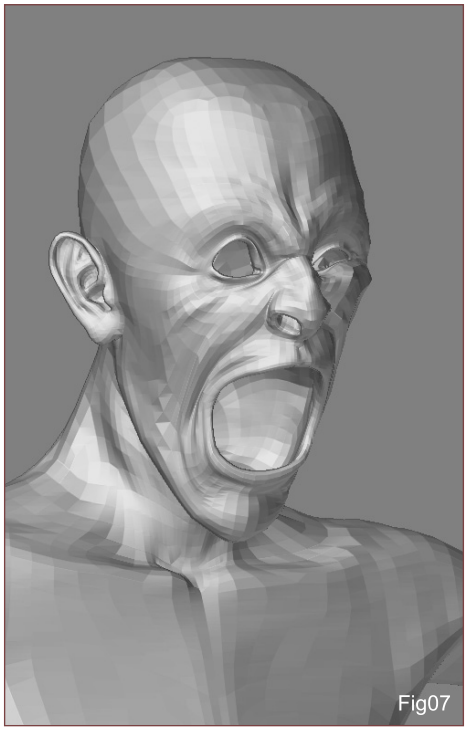

Fig03

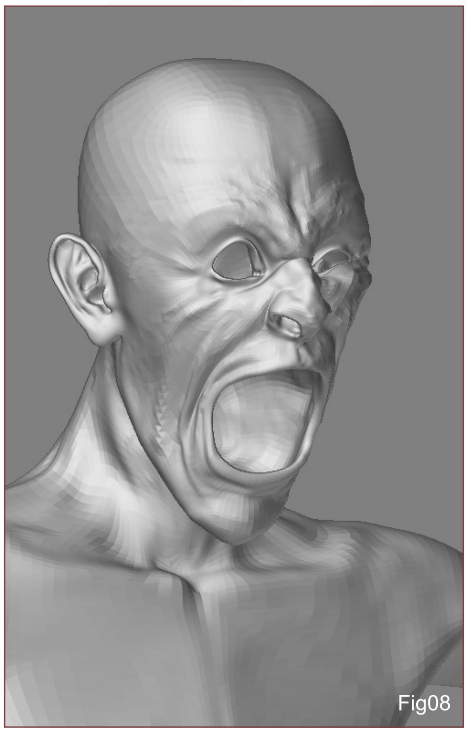

Fig04

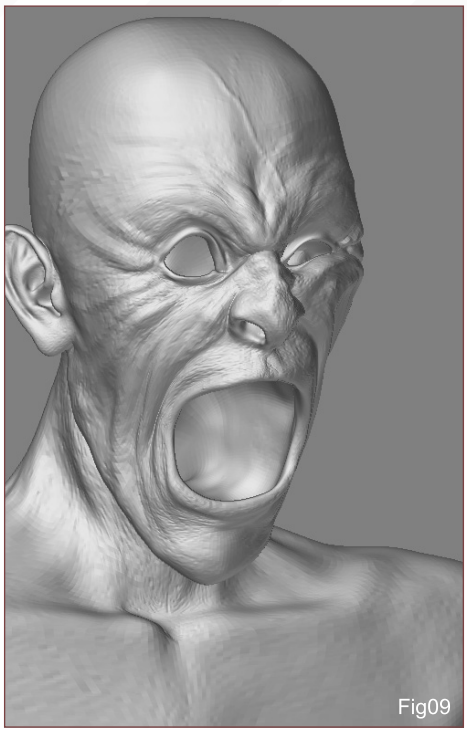
'Deformation' option activated. Deactivating the brush MRGB options, I tick only the 'Zadd' and 'Zsub' options, setting the Z intensity parameter to 11. Various alphas will now be used to paint the skin pores. I select the 'Simple Brush', load the alpha, and choose the 'DragRect' stroke. When the wrinkles are ready, I lift the figure from the canvas, thus exiting the Projection Master. I set the figure in a different view and repeat the whole process, painting the skin of the other profile. Now the mapping begins. First we create the texture for our figure, setting the width and height in the 'Texture' options at 4096, and click on 'new'. Then, in the 'Tool>Geometry> mark, we set the lowest possible subdivision level. Then we pass on to the 'Tool>Texture' mark and click on the 'Adaptive UVTiles' ('AUVTiles'), creating automatic mapping for the object. In order to make sure that the mapping is correct, we can also click on 'UV Check Overlapping' option. Now we can make the displace map. In the 'Tool' mark we move on to the 'Displacement' and, with the 'Adaptive' and 'Displace mode' buttons highlighted, we click on 'Create DispMap'. Now the ZBrush generates the map, depending on the speed of your computer. When this is done, the displace map is stored in the 'Alpha' mark. We export it and rotate vertically ('Flip Vertical'), and then proceed to paint the texture. Here I used several samples, pre-prepared in Photoshop - these are parts of photos of several faces. The texture creation, just as the painting of the facial irregularities was done, is done with the

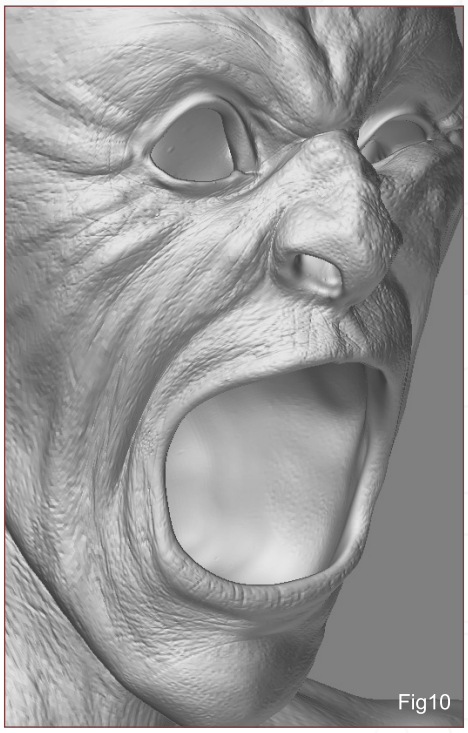

Fig05


Fig06

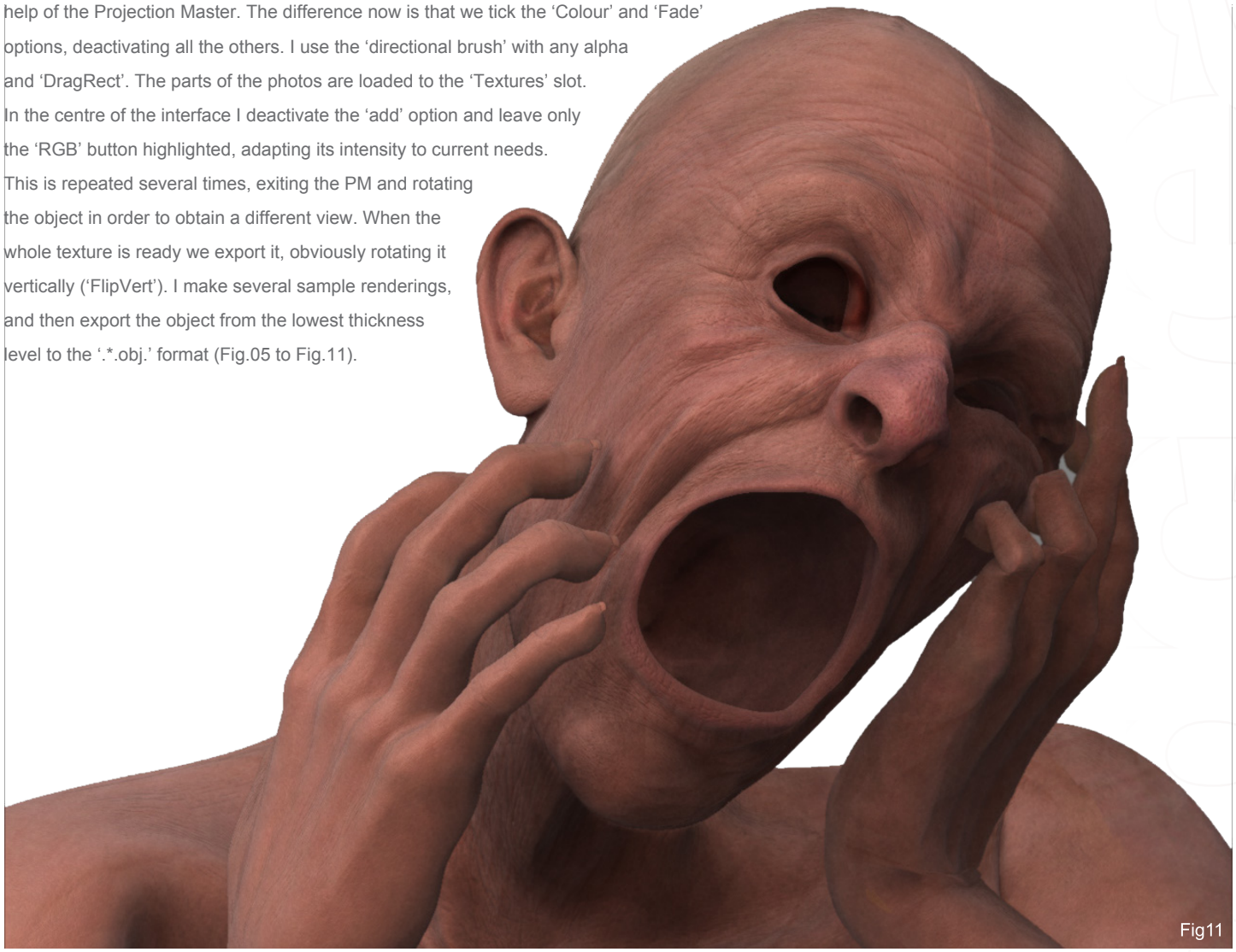

Fig07


Fig08


Fig09


Fig10

help of the Projection Master. The difference now is that we tick the 'Colour' and 'Fade' options, deactivating all the others. I use the 'directional brush' with any alpha and 'DragRect'. The parts of the photos are loaded to the 'Textures' slot. In the centre of the interface I deactivate the 'add' option and leave only the 'RGB' button highlighted, adapting its intensity to current needs. This is repeated several times, exiting the PM and rotating the object in order to obtain a different view. When the whole texture is ready we export it, obviously rotating it vertically ('FlipVert'). I make several sample renderings, and then export the object from the lowest thickness level to the '.*.obj.' format (Fig.05 to Fig.11).


Fig11

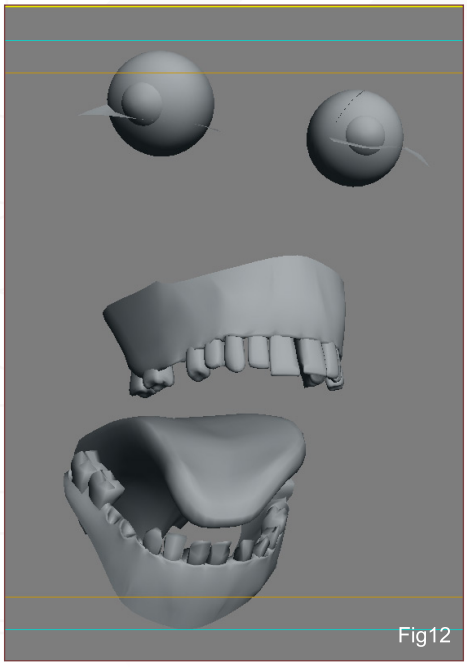
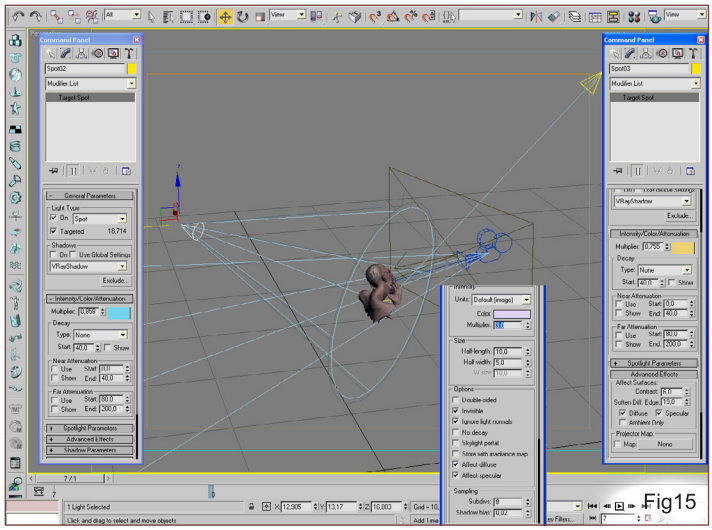

Fig12


Fig13


Fig15

MAX

Having imported the object, I set the figure in the desired pose, using the biped bones. The shirt of our figure remains to be modelled. It is created from the figure mesh, by copying appropriate polygons and modelling the collar. We map and set the shader. I copy the 'skin' modifier for the shirt, dragging it from the stack straight onto the object. In order to generate the hair, I copied several polygons from which the hair was to grow. In the 'properties' panel I switch off the 'renderable' option and the object becomes invisible during the rendering. Now only the lights and rendering remain to be set. I used three 'vray' lights and to gain better control over the picture, I split it into several elements while rendering ('diffuse', 'specular', 'colour', etc.). These layers will be used to create the composition in Photoshop (Fig.12-16).

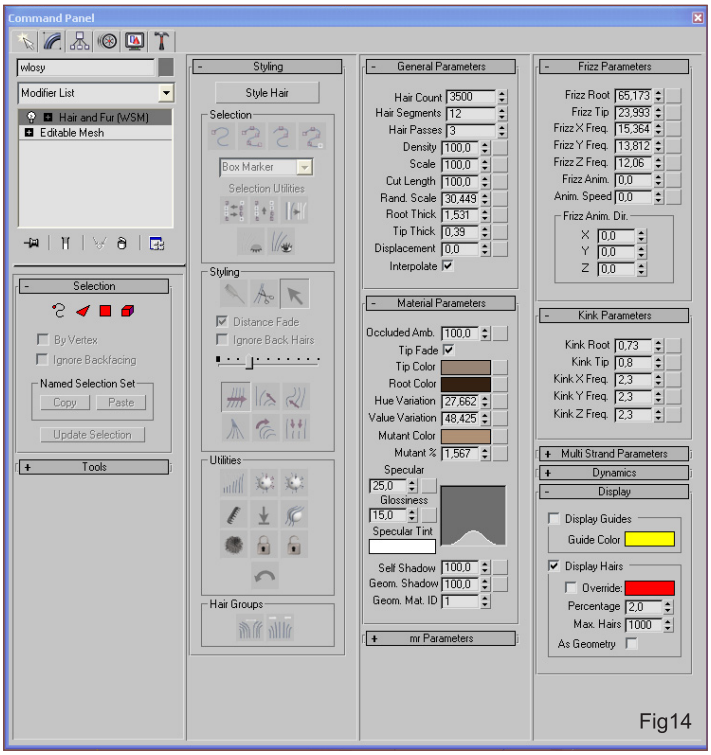


Fig14

PHOTOSHOP

The last phase of the work is composing the renderings in Photoshop. Where any errors appeared, I corrected them using the 'stamp clone' tools. I retouched some of the hair, using other photos as reference. For the background, I chose a picture taken during a trip to Budapest. The focus depth was simulated by means of the 'lens blur' filter, and through creating a suitable mask. Finally, I applied the 'photo' filter to the whole picture, which made the colours seem colder (Fig.17, Fig.18).

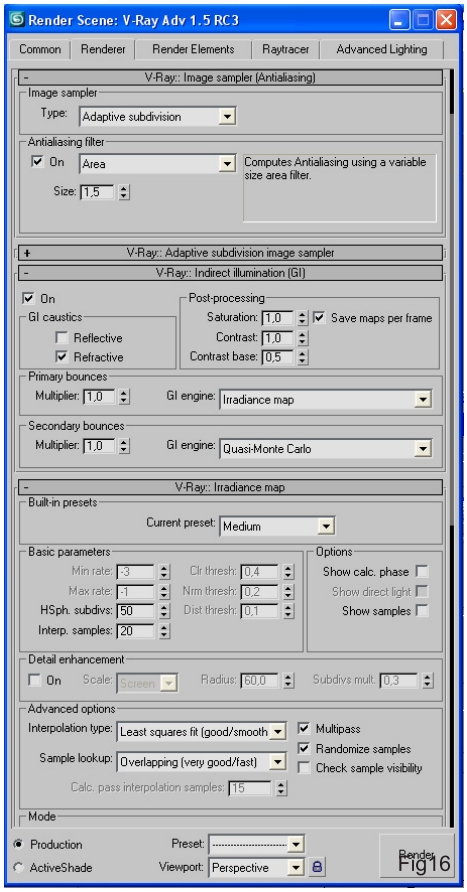


Fig16

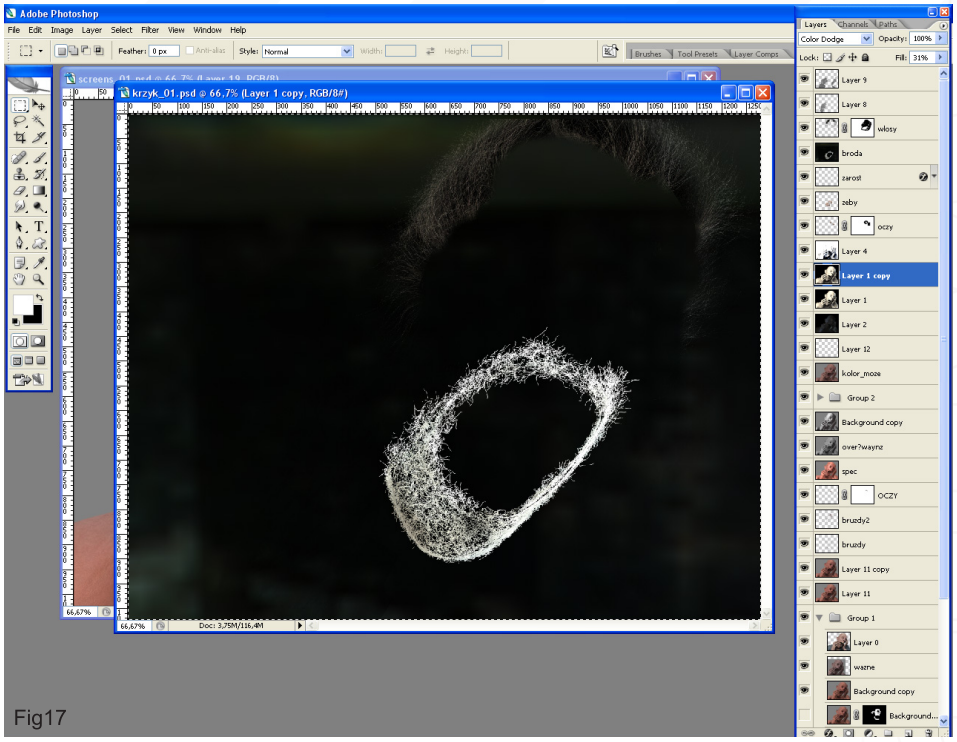
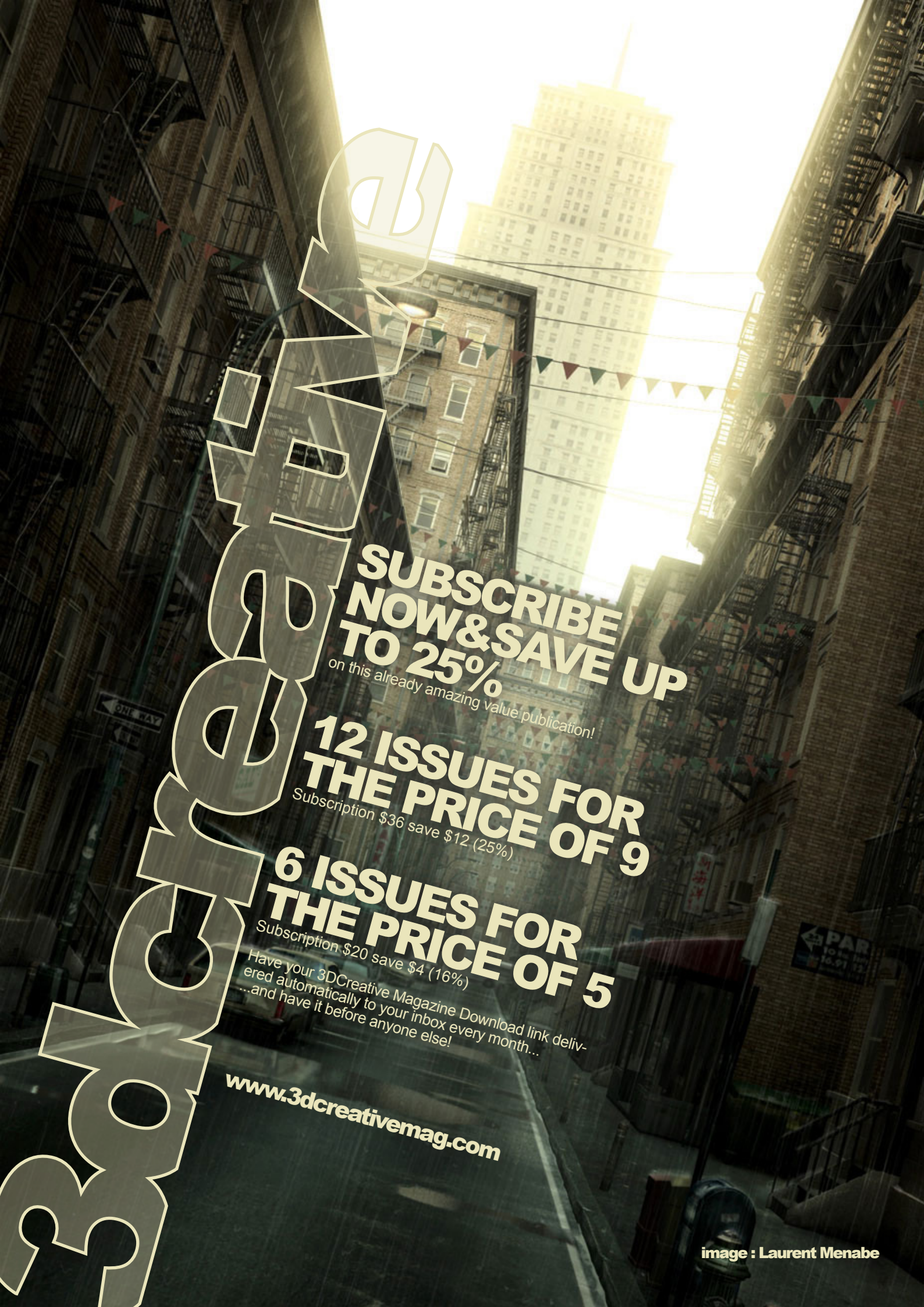


Fig17



Fig18


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Say Cheese



Inspired by the classic horror, “Nosferatu”, you can see how Eric created this rather creepy-looking character in, “Say Cheese”...

Say Cheese

CREATED IN:

Maya and ZBrush

CONCEPT:

This creepy fella started out as a quick sketch. Once I had a few sketches of his head to work from, I started searching 'Google Images' for some ideas on the mood, lighting, and theme for the project. Being a big fan of the classic horror film, "Nosferatu", I thought it would be a great reference piece for this project, so I gathered some shots from the film. You can see from my quick concept sketch that I had originally designed this guy to be eating a little creature. After pondering this idea a while, I decided to go a different way with the piece and have him eating cheese. I mean, who doesn't like cheese? (Fig.01)

MODELLING:

I did all of the base modelling for this project in Maya. I always do my best at this stage to keep edge loops clean and keep polygons 4-sided. This always makes things much easier in the long run. For the head, I knew from the concept that he would have his mouth open, so I modelled the low-res base this way, instead of trying to do it with the rig. The majority of the modelling that I do in Maya is done using a combination of polygons and subdivisions, as well as the smooth proxy tool (Fig.02).

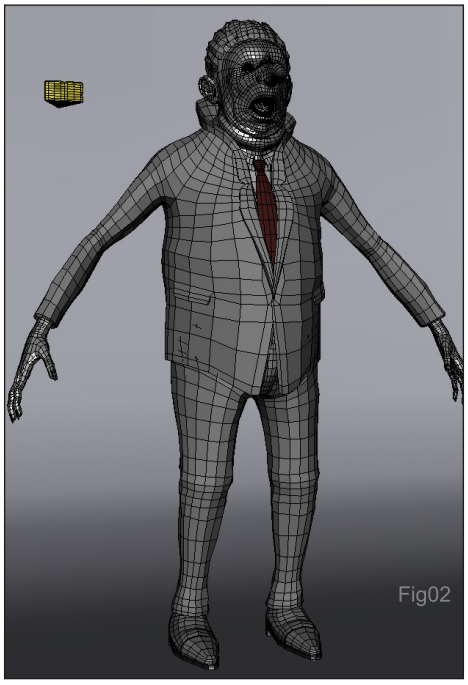
RIGGING:

For the rigging process, I used a Maya plug-in called "The Setup Machine". With this plug-in I can rig a biped character in about 30-45




Fig01




Fig02

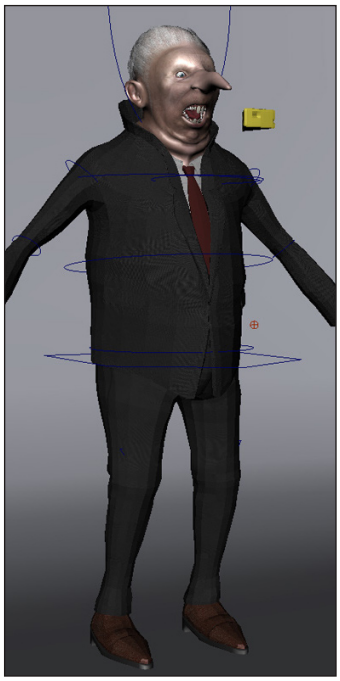
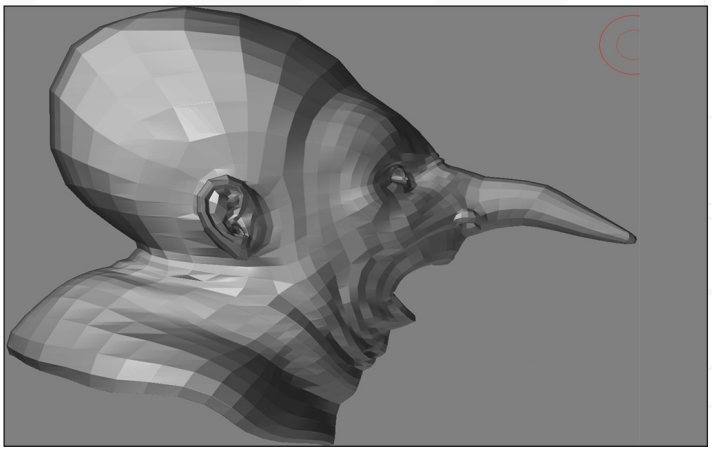
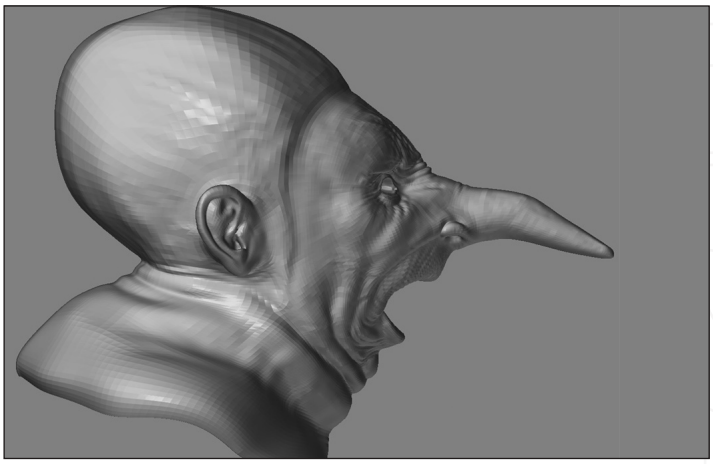





Fig03


Fig05

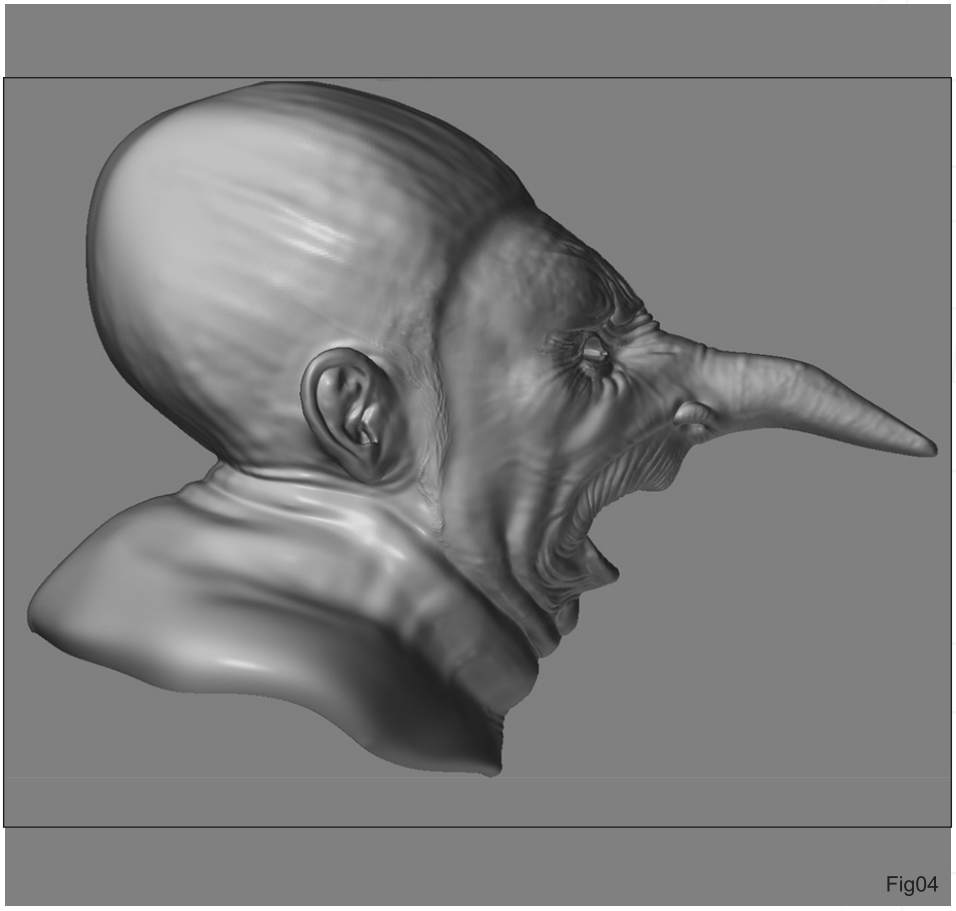


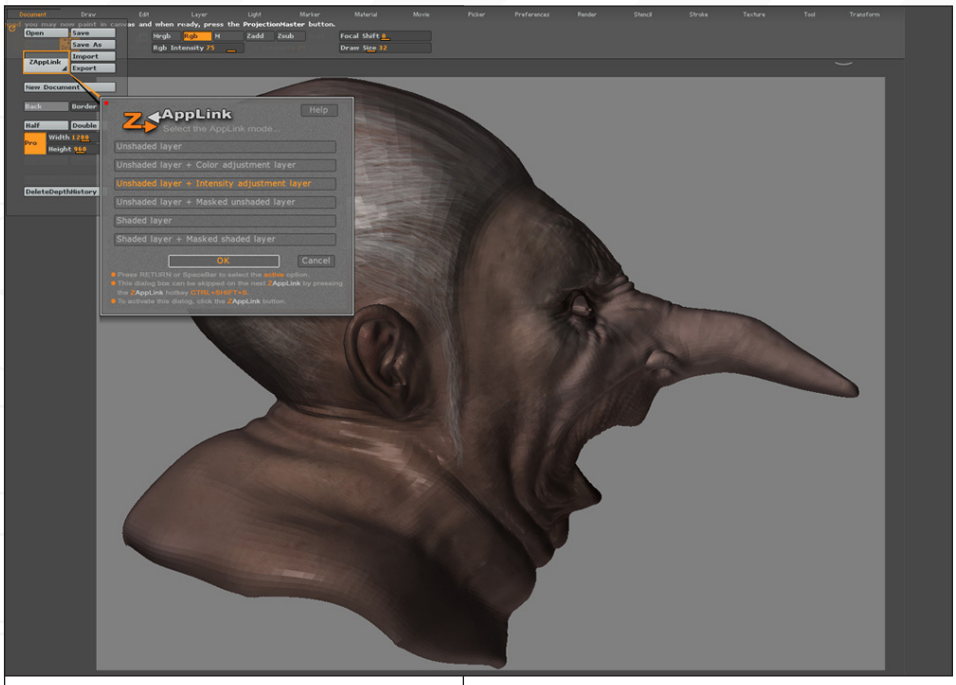


minutes. Its not a perfect rig, but it does a good job, and it's a great tool for a modeller, such as myself, who just wants to pose a character (Fig.03).

DISPLACEMENT:

Once I had some good base meshes, I exported them as Obj's from Maya and imported them into ZBrush. Woohoo, my favourite part: time to sculpt! The main goal with this guy's skin was to make it look creepy. I gave his face and hands a lot of wrinkles and imperfections using ZBrush's various sculpting tools. For the clothing, I focused on making believable creases and folds. I can remember my Mother (who does a lot of sewing) giving me great advice on drawing wrinkles in clothing. She said to make V's and quick changes in the folds. This has always stuck with me and it really does make a huge difference. She also told me not to do drugs, but who listens to everything their Mother says? I'm kidding, I'm kidding. Whenever using sculpting programs like ZBrush and Mudbox beta, I mainly


Fig04



only use 3 tools: push, pull, and smooth. I also used ZBrush's Automatic UV mapping tool to lay out the UV's. Whilst this method is probably not the smartest, it does the job and works great if all the texturing is done in ZBrush (Fig.04 & 05).

TEXTURING:

I did all of the texturing for this project using ZBrush's Projection Master and ZBrush's Zapplink plug in. Zapplink is a cool little projection texturing tool which links ZBrush up with external 2D paint programs. In this case, I used it with Photoshop. You can see from the screen-grabs just how cool this little plug-in is. The hair was created using a texture with alpha and carefully placed polygons (Fig.06 & 07).

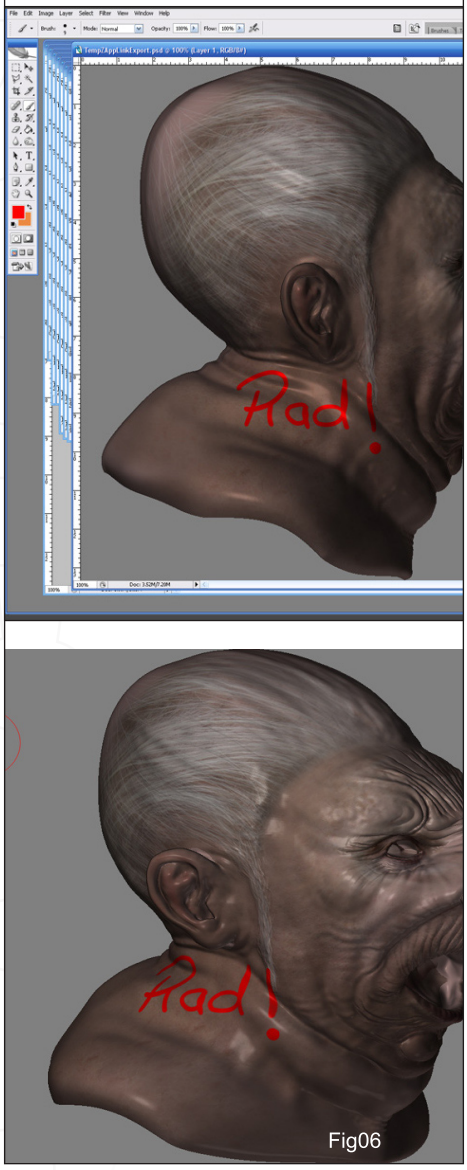


Fig06

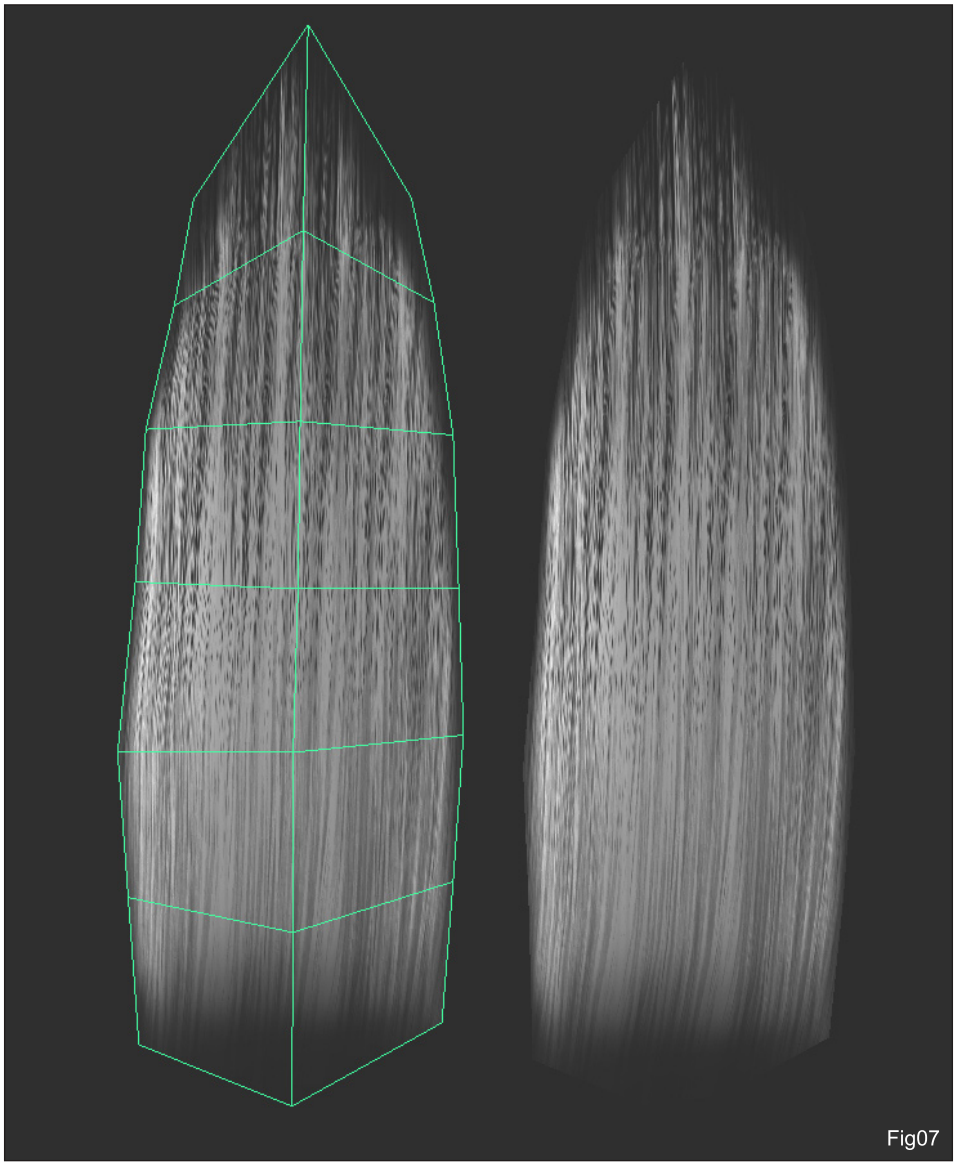


Fig07

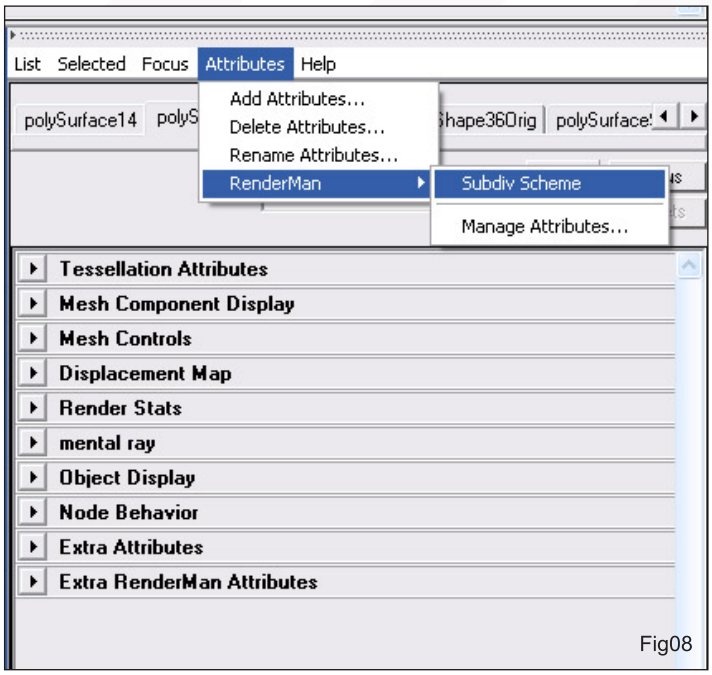


Fig08

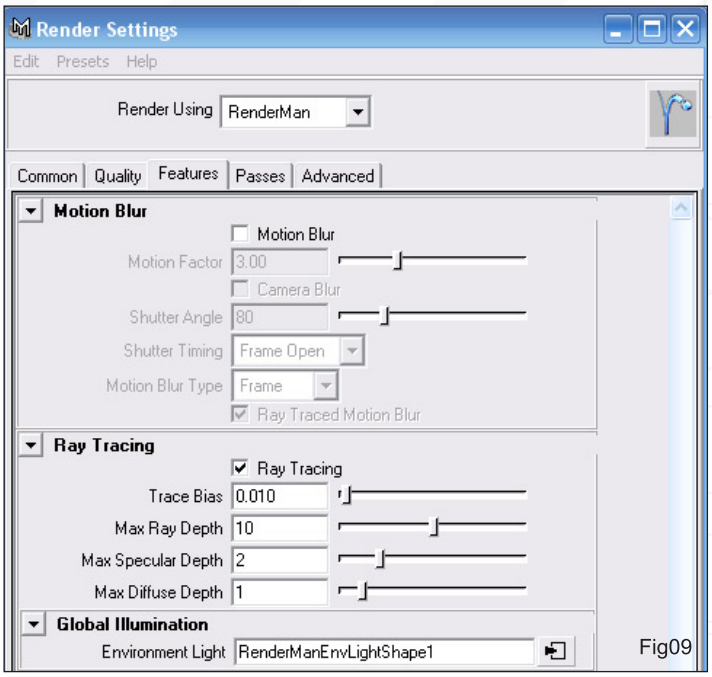


Fig09

RENDERING:

To get the moody setting I wanted for this project, I knew I had to be strategic with the lights and camera. For the camera, I went with a low angle and rotated the camera a bit to get a little confusion across to the viewer. To get the atmospheric shadow I used a light with Renderman shadow attributes, and simply placed it in front of the creep and the wall. I've quickly become a huge fan of Renderman for Maya. The speed at which it renders displacements is insane. A lot of the Renderman options are set in the attribute editor. The first thing I did to get the scene ready for Renderman was set all the objects in the scene to be rendered as Subd's. This is done by selecting the object, going to the attribute editor, and setting the Renderman option to subd scheme. I also set the shader node to use sub surface scattering. In the rendering options I turned on raytracing and also added an environment light for a little global illumination. I also set the Shading Rate down to 1.0 (the lower the better) (Fig.08-11).

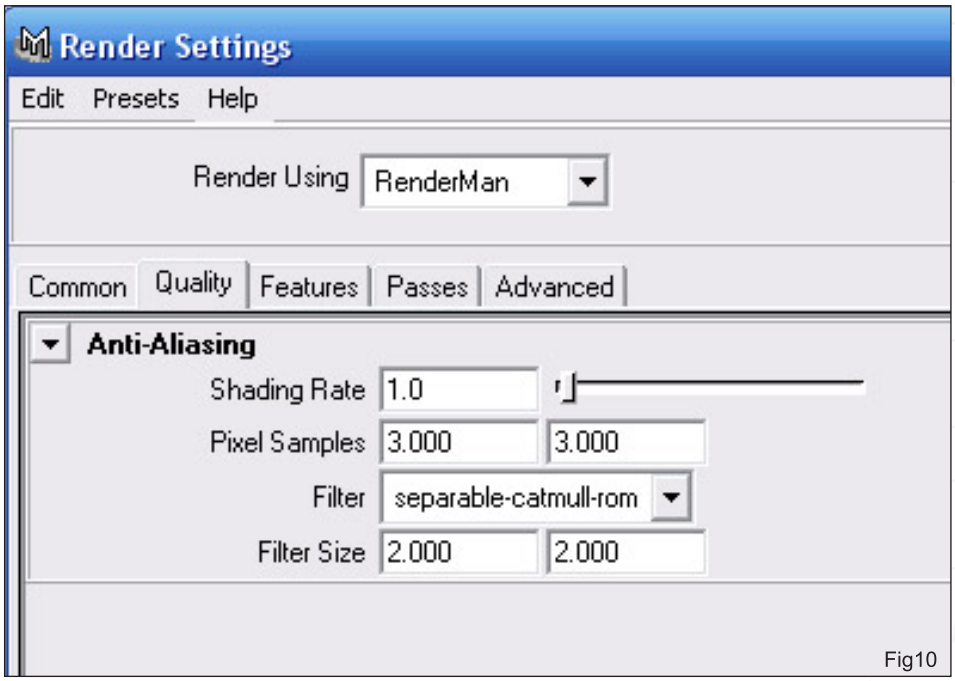


Fig10

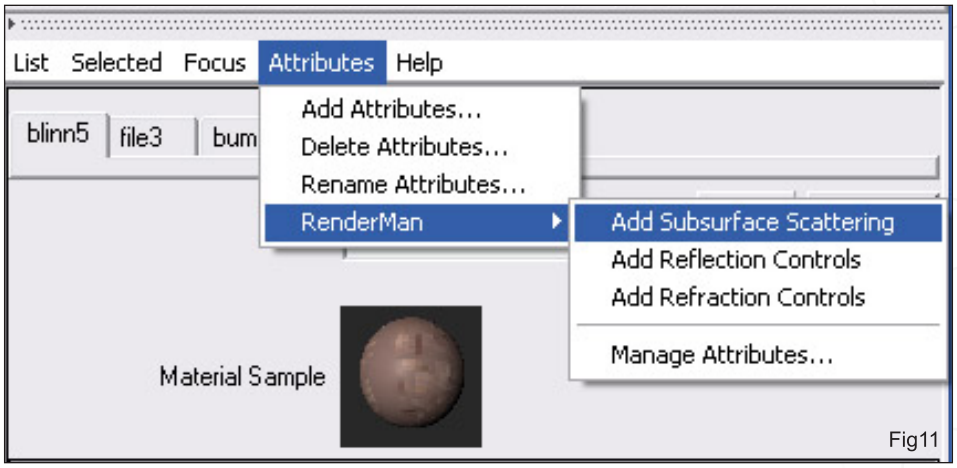
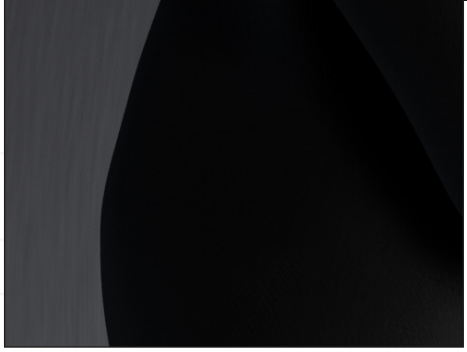


Fig11







That does it for another “Making Of” article. I hope you enjoyed it and maybe even learned a thing or two. Thanks again to 3DTotal and Zoo Publishing for this great opportunity. Please feel free to drop me line if you have any feedback and/or questions. Here are some final shots... Enjoy!

Eric Provan

For more from this artist visit:

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Teleportation

In this tutorial I want to show you the process of creating my latest work, “Teleportation”. I’ll show you all of the stages of this process, and will focus on using 3DTotal Textures...



“The scene was made using 3ds Max 9, VRay 1.5, Photoshop and Combustion, but this Overview would be useful for users of other applications”



Fig01

TELEPORTATION

CREATED IN:

3D Studio Max 9, VRay 1.5, Photoshop, Combustion

INSPIRATION

I used many sources for inspiration when creating “Teleportation” (Fig.01). When I start work on a new picture I look for photos, paintings, computer graphics, even movies or comics, any pictures that can inspire me (Fig.02). I recommend ‘Google’ for photo searching and CG website galleries (3DTotal is a good example). You can also browse some albums of classic masters of painting. I wanted to create an image with plants, trees, shrubs and old buildings, and to add a mysterious atmosphere to it. After a quick browse of photos and other images, I decided to make an old garden. I started with a simple scene with boxes, just for composition, and my plan was to replace them with final models.



Fig02

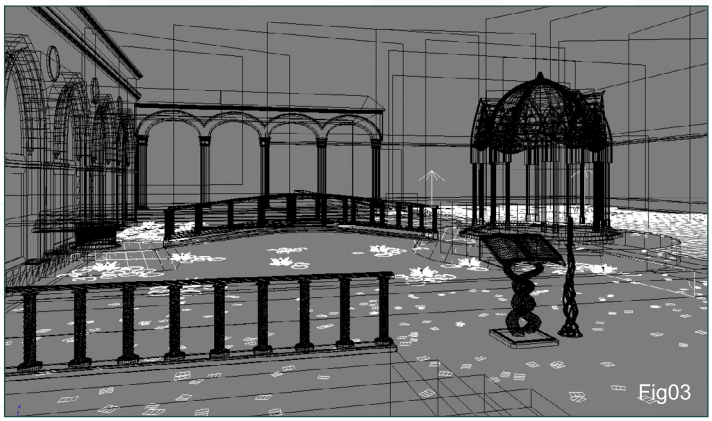
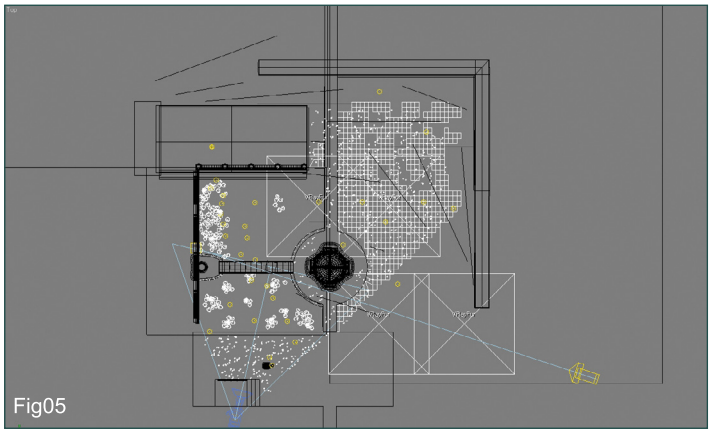

Fig03


Fig04

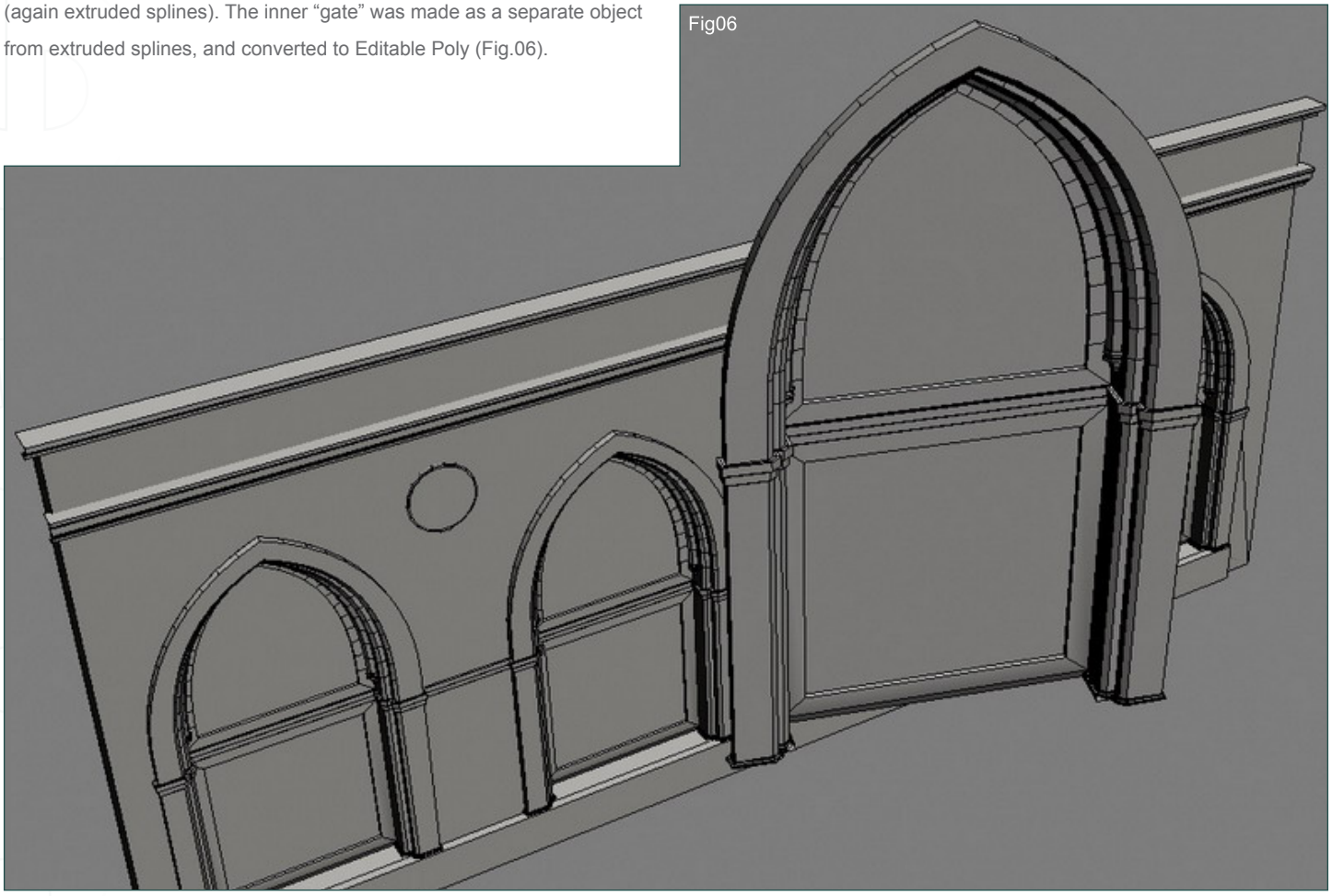
MODELLING

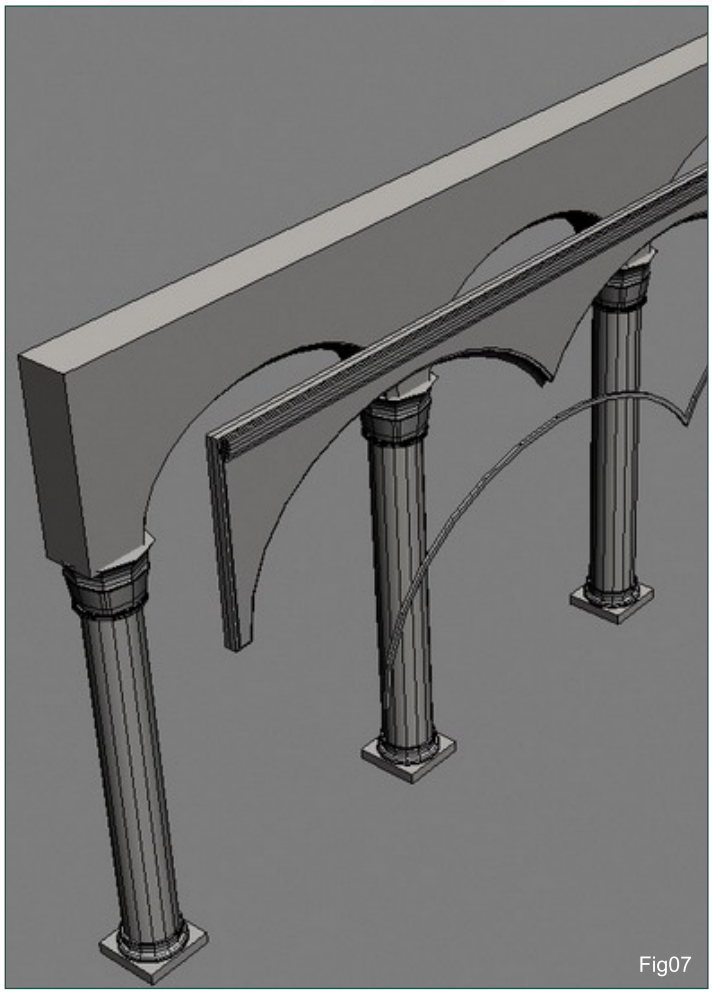
The scene is split into two main types of objects: buildings and plants. I decided to use great collections of trees and shrubs from 3DTotal Textures Vol.10, and VRayFur to create the grass. So, I just had to model buildings (Fig.03-05). Describing basic modelling techniques is not my intention in this Making Of, so I will show you a few objects from my scene and briefly describe the process of modelling.

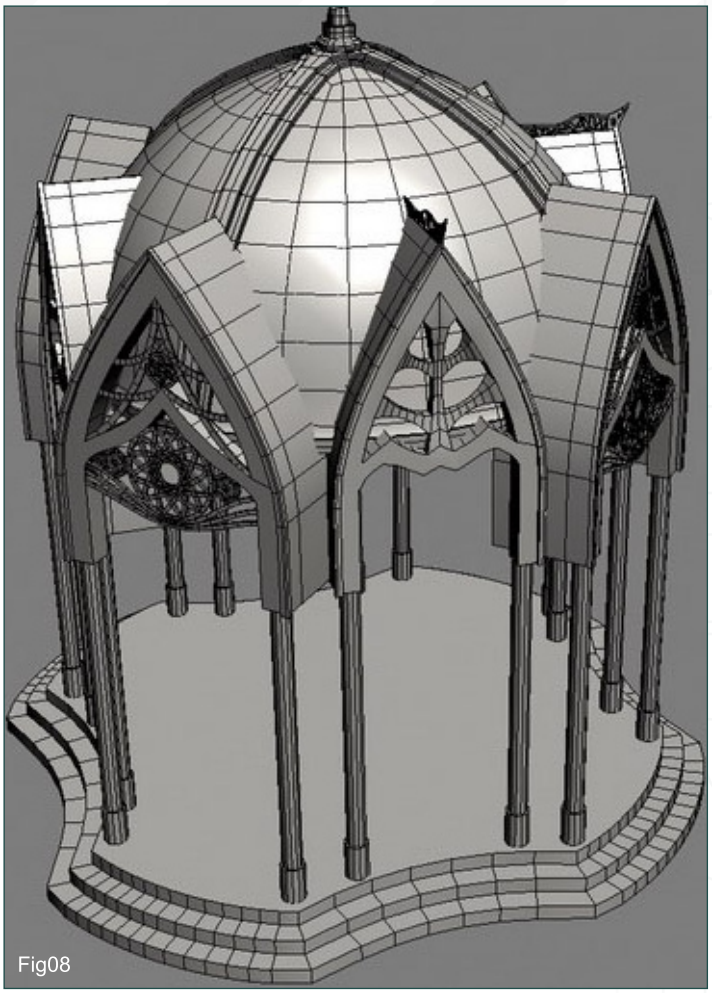

Fig05

LEFT BUILDING

Like many objects in this scene the left building was made using just a few simple techniques, including extruding splines, moving, scaling, and extruding polygons, in Editable Poly. I made the main wall by extruding splines, and then I added some horizontal elements (again extruded splines). The inner “gate” was made as a separate object from extruded splines, and converted to Editable Poly (Fig.06).


Fig06


Fig07


Fig08

CENTRAL BUILDING

The Central building is constructed from only a few parts: back wall, pillars, front wall and roof. The roof and back wall are as simple as possible - just a few polygons. The pillars were made from cylinders using simple modelling techniques in Editable poly; extrude, bevel etc. The front wall is made from extruded splines (Fig.07).

PERGOLA

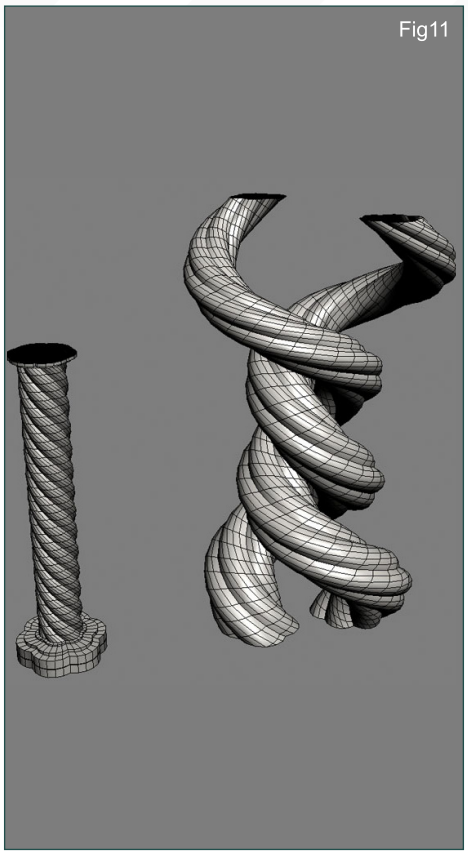
I wanted to have a different building on the right side of the picture, so I decided to model some kind of pergola, partially hidden in the trees. I started with the roof, and modelled it from hemisphere with a few segments using Editable Poly, and then applied TurboSmooth modifier. Pillars are all modified cylinders. Smaller roofs around the main roof were made from extruded splines, edited with Editable Poly, and ornaments were renderable splines (Fig.08).

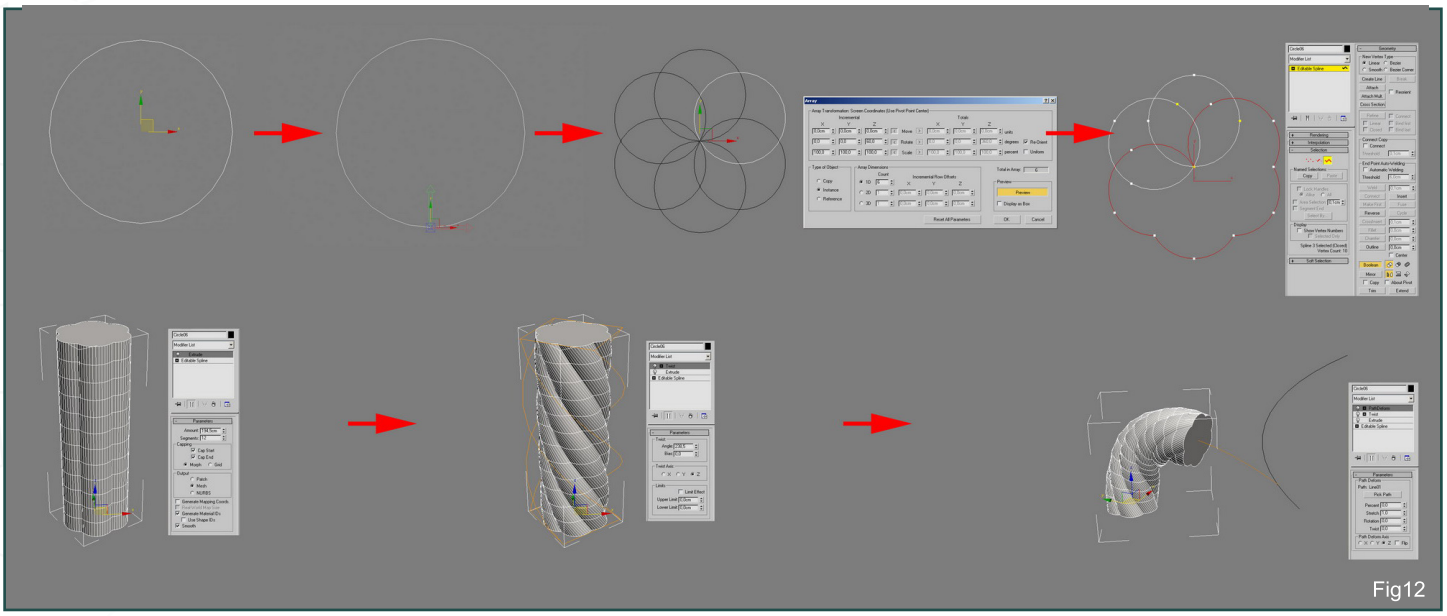
LOTUS

Lotus is made from few simple objects. Petals were planes with a few segments, with moved vertices, and then I used Symmetry, Bend and Shell modifiers. Stamens are renderable splines, and the central part is just a cylinder modified with Edit Poly. To make leaves I drew the basic shape with spline, then converted it to Poly, extruded the border and moved it up (Fig.09).


Fig09


Fig10

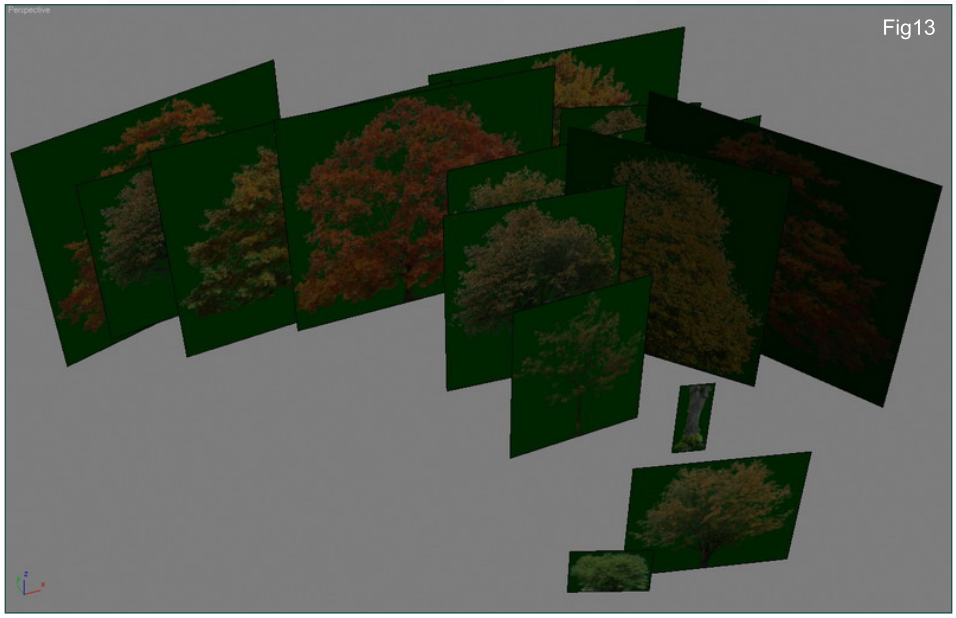

Fig11

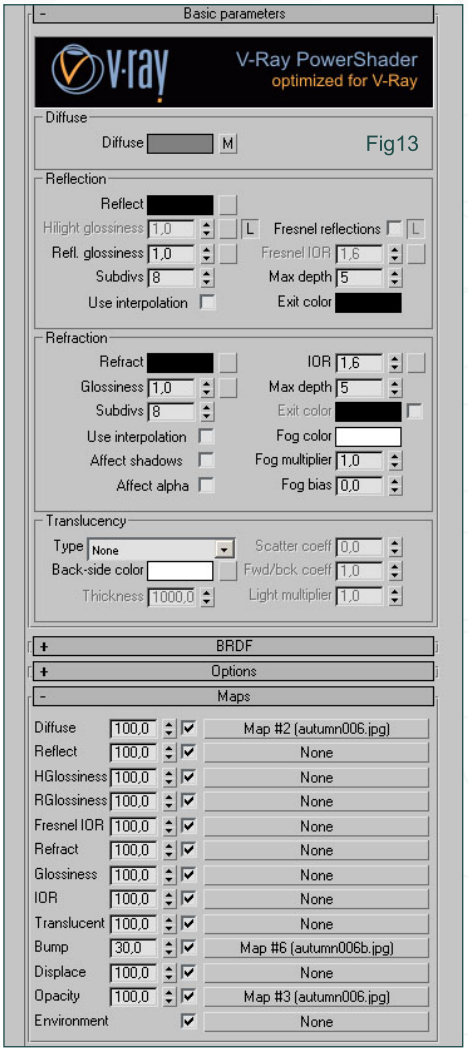

Fig12

BOOK The book is a simple model created from a box, using Editable Poly and TurboSmooth modifier. I modelled the candle from a cylinder moving vertices (Editable Poly again) and then applied TurboSmooth on it to get a dense mesh. In the final stage I painted deformations using the tools available in Editable poly. A tablet is very useful for painting deformations (Fig.10).

TWISTED PILLARS I created all of the twisted pillars using one method: I attached six circles (rotated and cloned with array) into one spline, then, using Boolean: Union, I created one spline, that I extruded, and then applied the Twist modifier. To create part of the base for the book I used PathDeform modifier on a twisted pillar (Fig.11 & Fig.12).

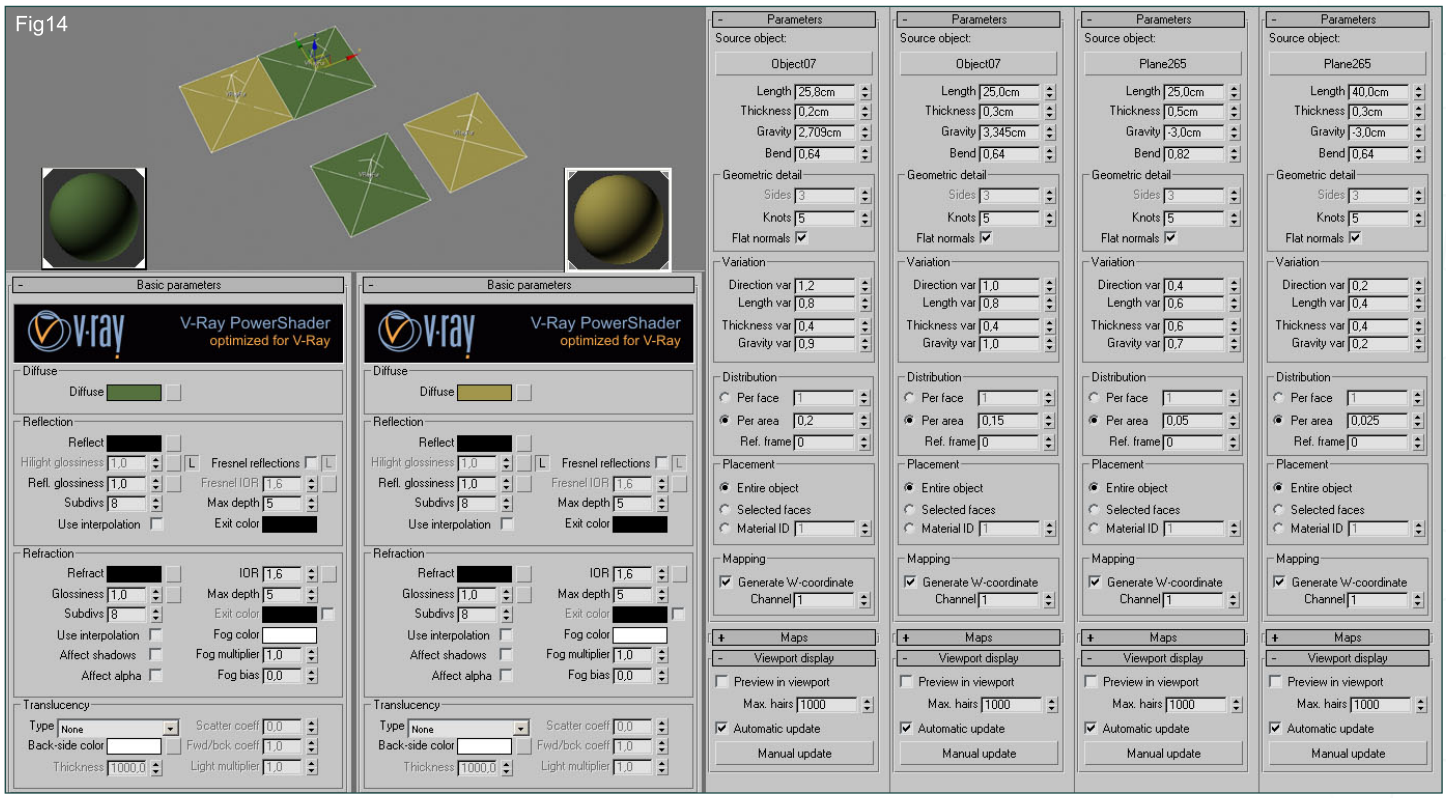
TREES AND SHRUBS As I mentioned earlier, I created the trees using Volume 10 of the 3DTotal Textures Collection, which is a great source of ready to use maps of trees and shrubs. I just placed several planes in the scene and made different materials for them (in fact I created only one material, then it was copied many times with different maps). The great thing with these





textures is the lighting. You can find many different tree textures, or can even do them yourself, but the 3DTotal Textures do not have directional lighting, so they are suitable for many lighting conditions in many different scenes. You can place these kind of trees in Photoshop after you render your scene, but I prefer placing in a 3D scene, because I want to have nice reflections, shadows, and GI that includes influences of these trees (Fig.13).

GRASS The grass has been made using VRayFur. I placed four VRayFurs in my scene with different parameters and two different materials. A nice feature in VRay 1.5 is that you can see a preview of fur in viewport (Fig.14).





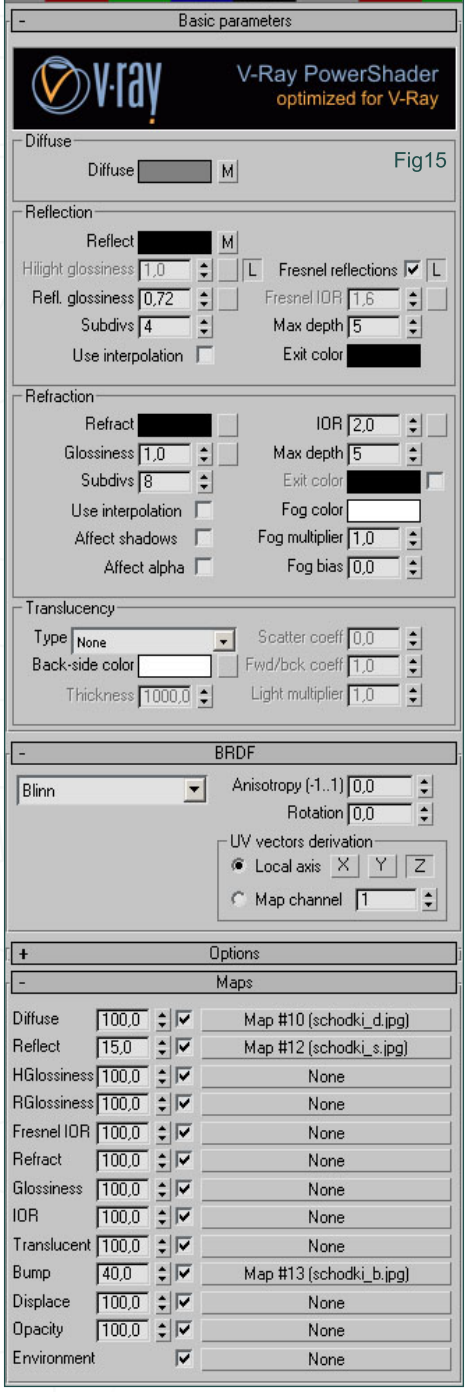
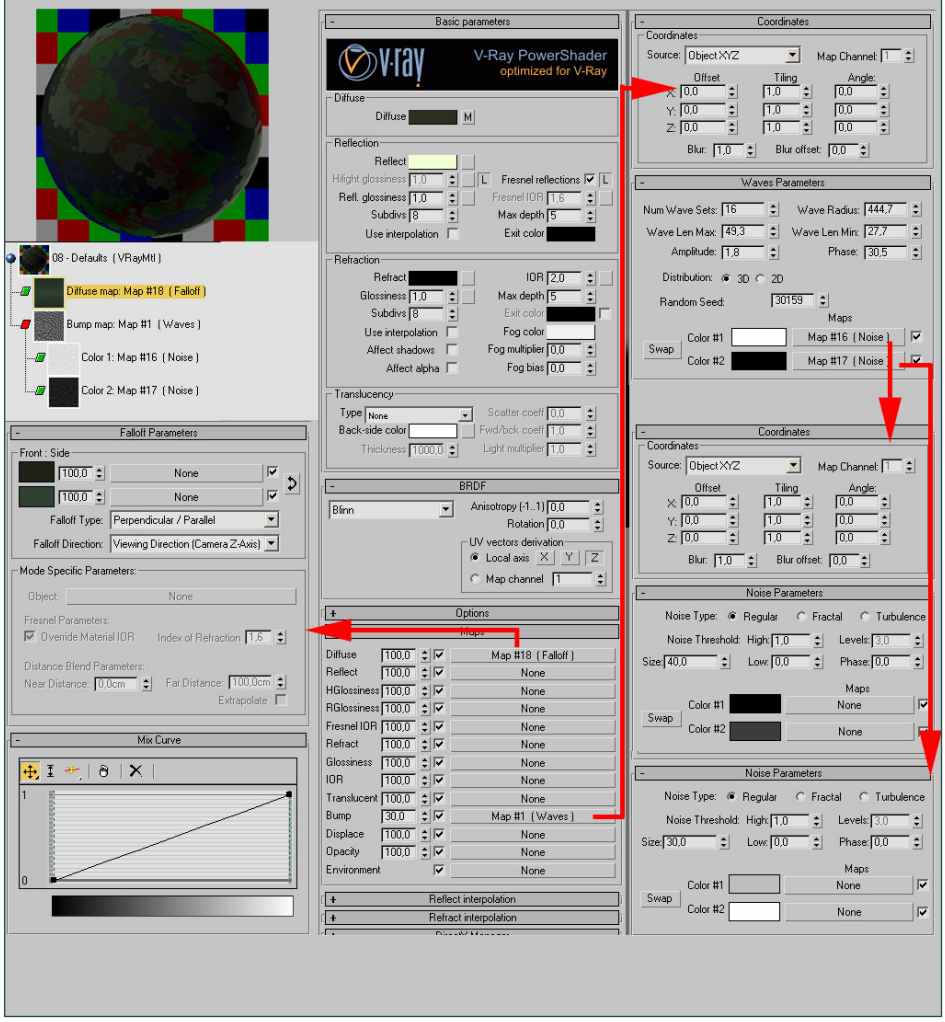


Fig16



Textures & Materials

Materials and textures were very important, maybe even the most important part of my scene. All textures were made using 3DTotal Textures from volumes: 1, 2, 5, 6, 9, 10, 12, 13 and 14. There are only a few materials with procedural textures, most of the objects were unwrapped, and then textured in Photoshop, using textures from the 3DTotal Textures CDs/DVDs. Most materials are similar: diffuse and bump textures, sometimes with specular maps in the reflect slot, and I also used reflection with Fresnel reflections and glossiness for almost every material. I described the general texturing process in my previous tutorial: “Making of Alley Way”, so here I will show you some materials and textures from my scene, and explain how I did them.

Stairs

Fig.15 shows a typical material in my scene: the stairs. As you can see I used three maps (diffuse, reflect and bump), and set Fresnel reflections with glossiness (Fig.15).

Water

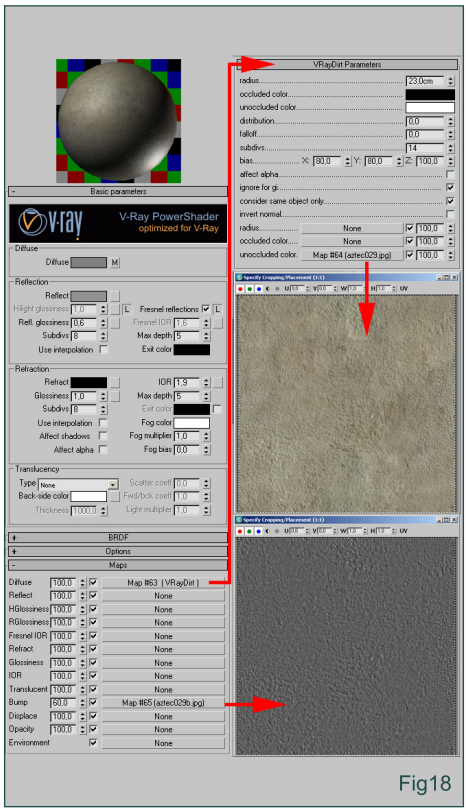
Water is a simple procedural material. I didn’t need transparency so this material hasn’t got refraction. In the diffuse slot is the Perpendicular/Parallel Falloff map (dark green), and for the bump channel I used Waves with some Noise (Fig.16).

Ground

The ground is the most complicated material here. I used a new material type: VrayBlendMtl, which is better than the standard Blend material because it can be rendered faster and it works with passes (I will explain rendering with passes



Fig17


Fig18

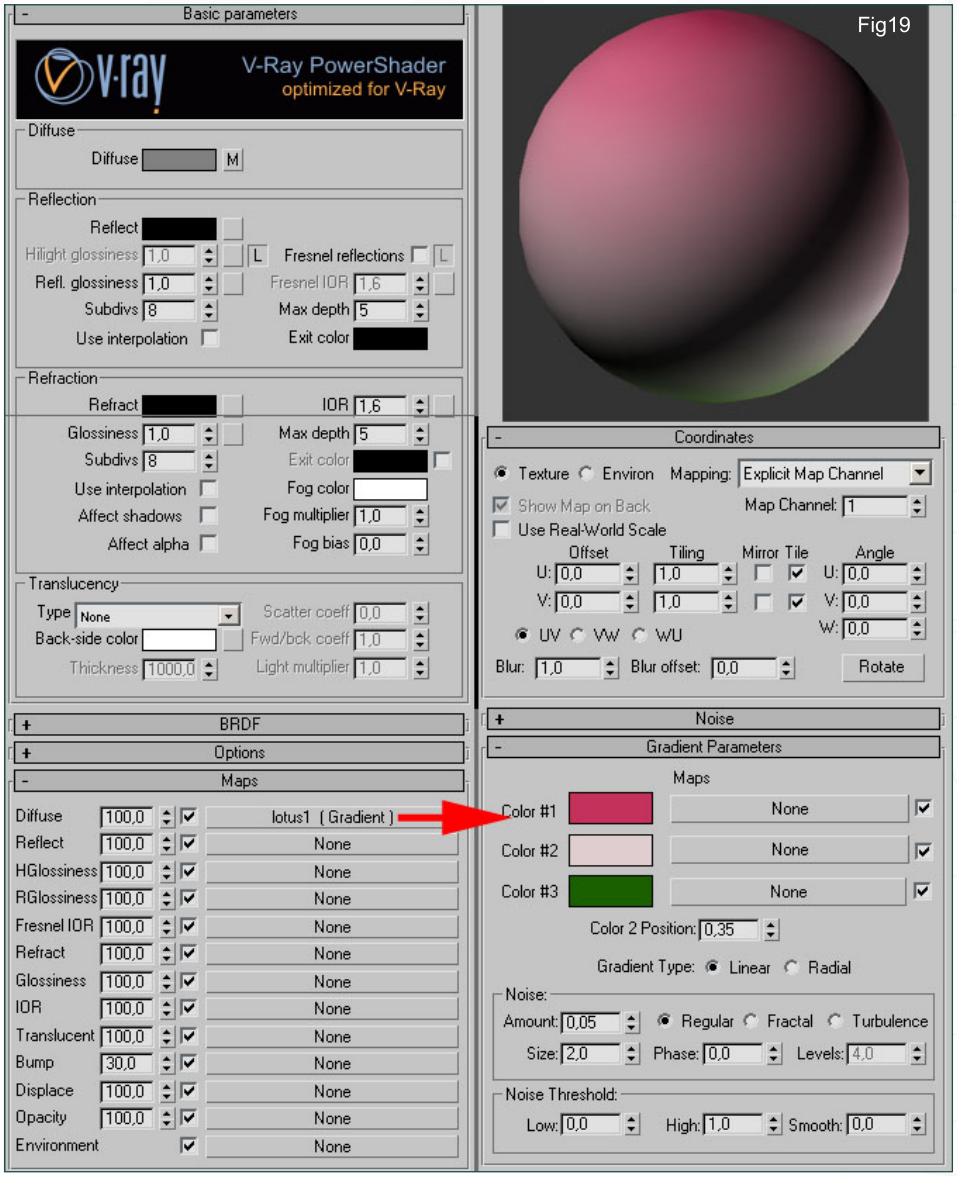


Fig19

later). I created several VRayMaterials and blended them using VrayBlendMtl with masks from 3DTotal Textures Volume 5 (Fig.17).

PETAL The second - purely procedural - material is the lotus petal material. It has been made as simply as possible, as just a gradient in the diffuse channel, but the final effect was good for me (Fig.19).

STONE A very useful thing in VRay 1.5 is a new map: VRayDirt. It is a procedural dirt map which you can use to render ambient occlusion, or to create a nice old, dirty material. You can also use a standard bitmap texture with VRayDirt, as I did to create universal old stone material for my scene. I didn't want to make different textures for all objects, so I decided to use procedural dirt with one of the textures from Volume 9 of 3DTotal Textures. I applied this material to pillars on the bridge, and near the stairs (Fig.18).

LEFT BUILDING I wanted to have really old and dirty walls on the left, with a visible influence of water (weathering). I started making textures for the left building with the 'spain10' map from Volume 13 (3DTotal Textures). I think it's a good texture for these kinds of walls. In the next step I added ambient occlusion in multiply mode. The best part of this work was of course adding the dirt, but before this stage I placed a few maps from Volume 5 (3DTotal Textures) in different modes, with a low transparency to

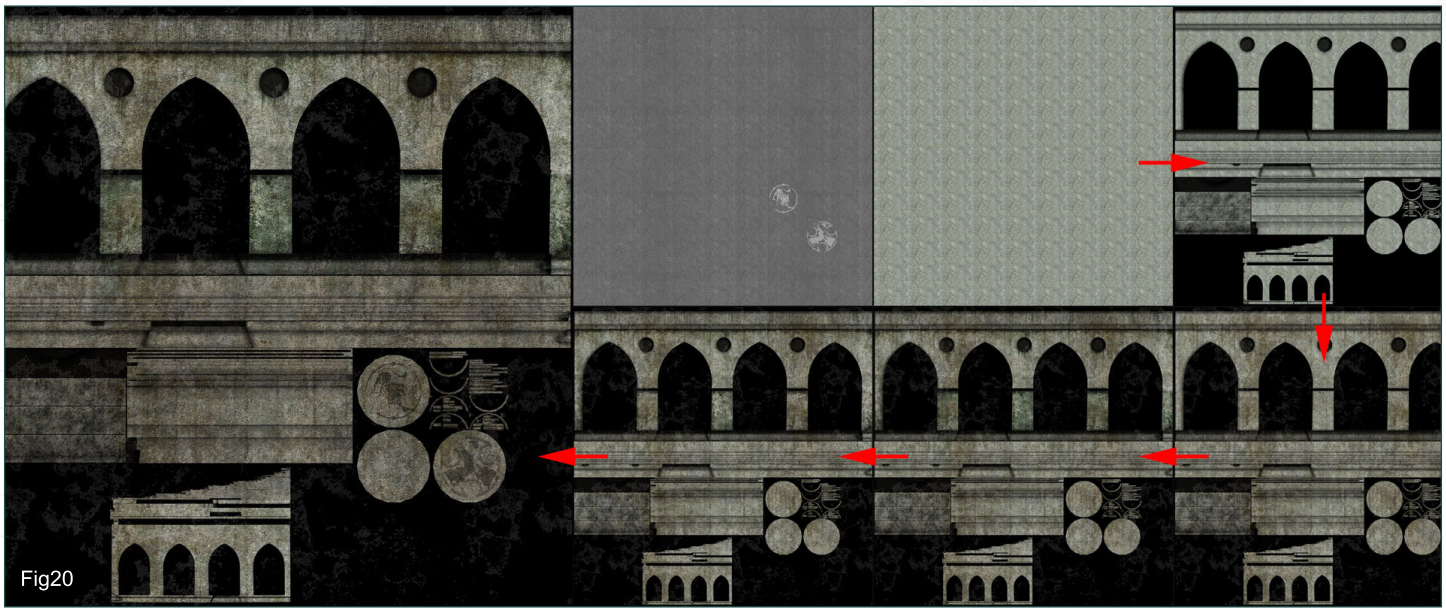

Fig20


Fig21

avoid visible tiling of the base texture. I added dirt in two ways: firstly by using dirt maps from Volumes 1 and 5 (3DTotal Textures Collection); secondly by painting them with a tablet. I colourized the dirt by using Hue/Saturation, and mixed them in different modes (multiply, screen, overlay, etc.). I repeated a similar process with the second element, the "gate" (Fig.20 & 21).

CENTRAL BUILDING

The central building has a different character than the previous one; it's not so weathered, but has a more "classical" or "ancient" look. There are five elements to this building: roof, stairs with floor, pillars, arcs, and walls. The roof is the simplest object to texture. It has been planar mapped and textured with a texture from Volume 12 (3DTotal Textures Collection): 'england004'. It also has a displacement map taken from a bump map. The stairs with the floor is a bit more complicated, but still quite simple. It has been unwrapped and textured using a few maps from Volumes 5 and 12 (3DTotal Textures Collection). The more interesting parts are the pillars, arcs and walls. The base for the texture of arcs are maps from Volume 9 (3DTotal Textures Collection): 'greek_roman004' and 'greek_roman005'. After applying render to the texture, ambient occlusion in multiply mode, the texture needs only a little addition of general dirt and diversity. I made it using maps from Volume 9 (3DTotal Textures), either in lightening or darkening modes. To do bump and specular channels I used special maps from Volume 9 (3DTotal Textures Collection), and layers with dirt from the

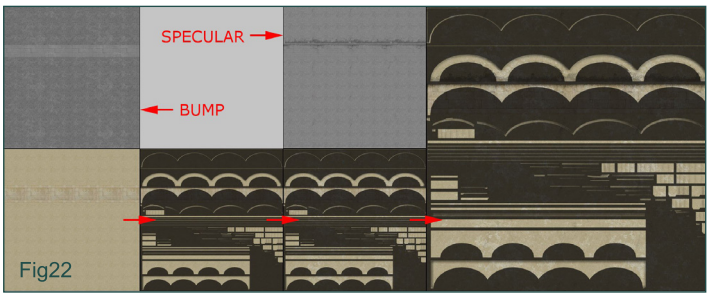


Fig22

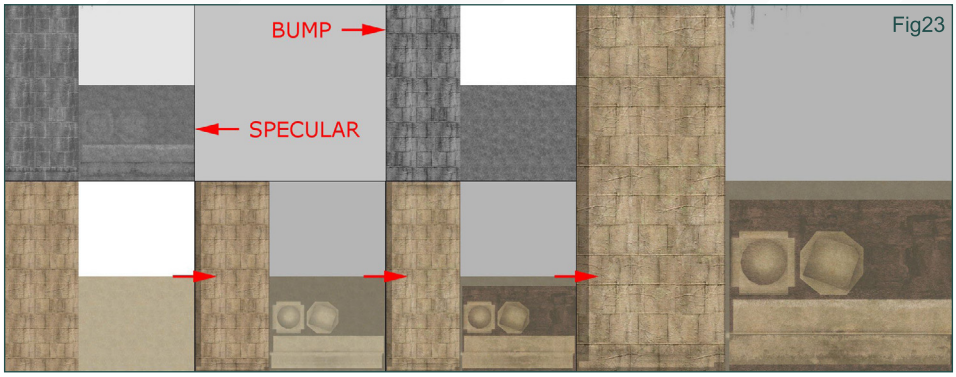
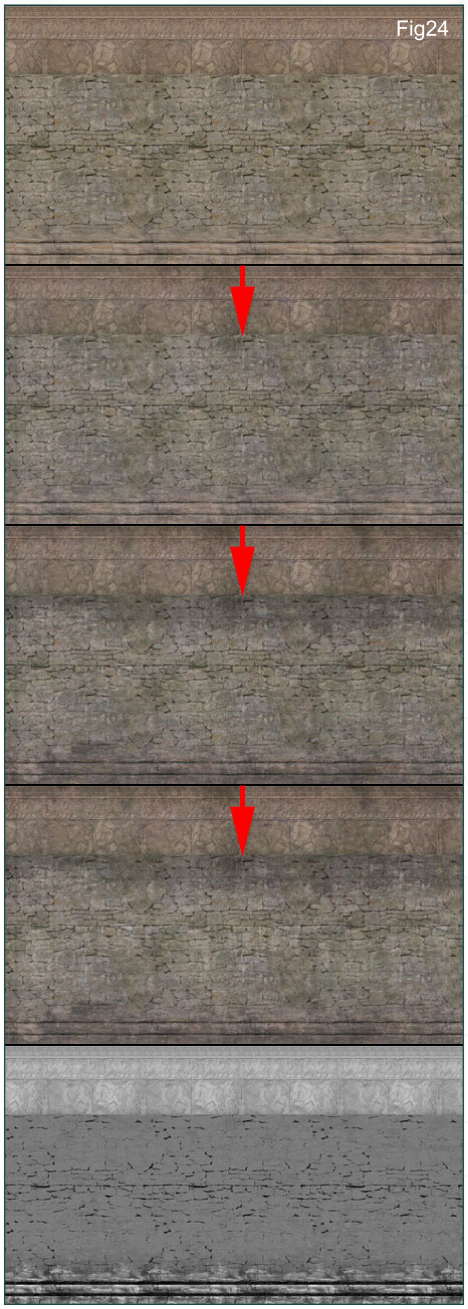


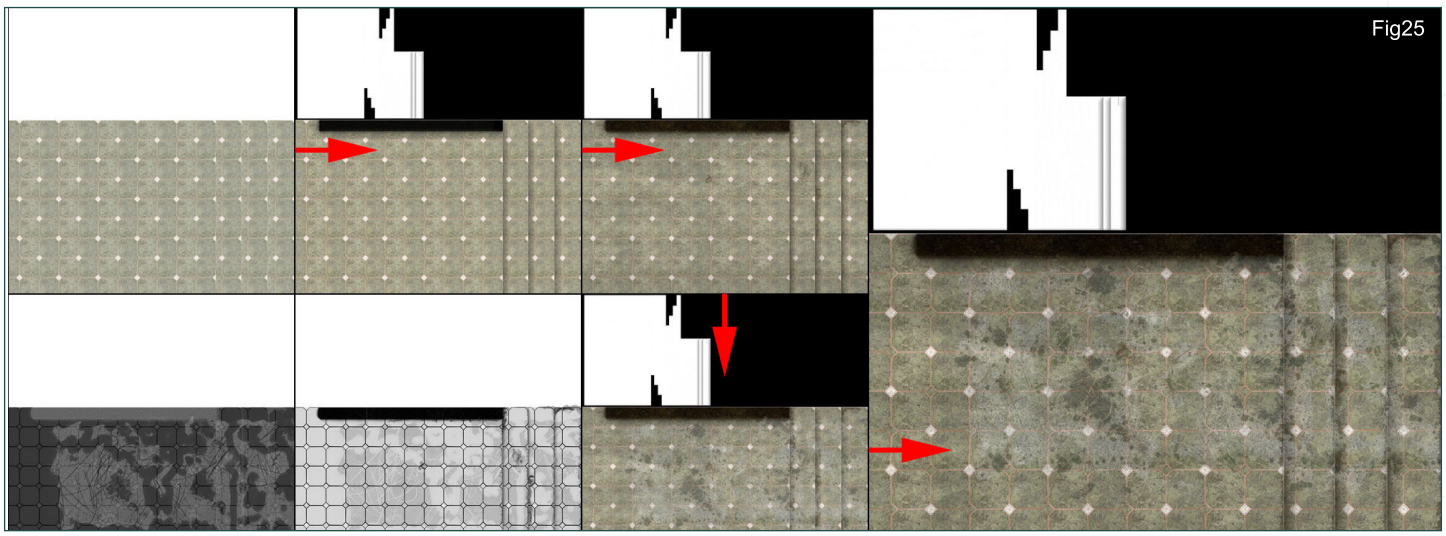
Fig23

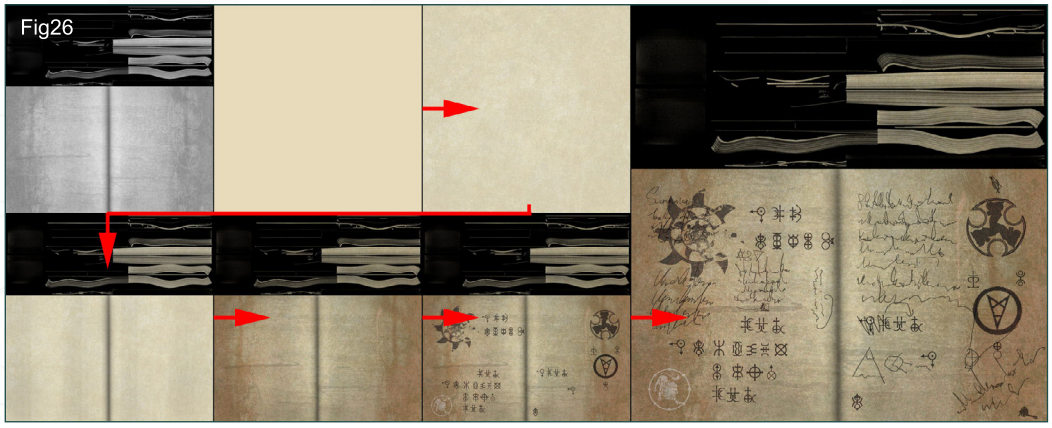

Fig24

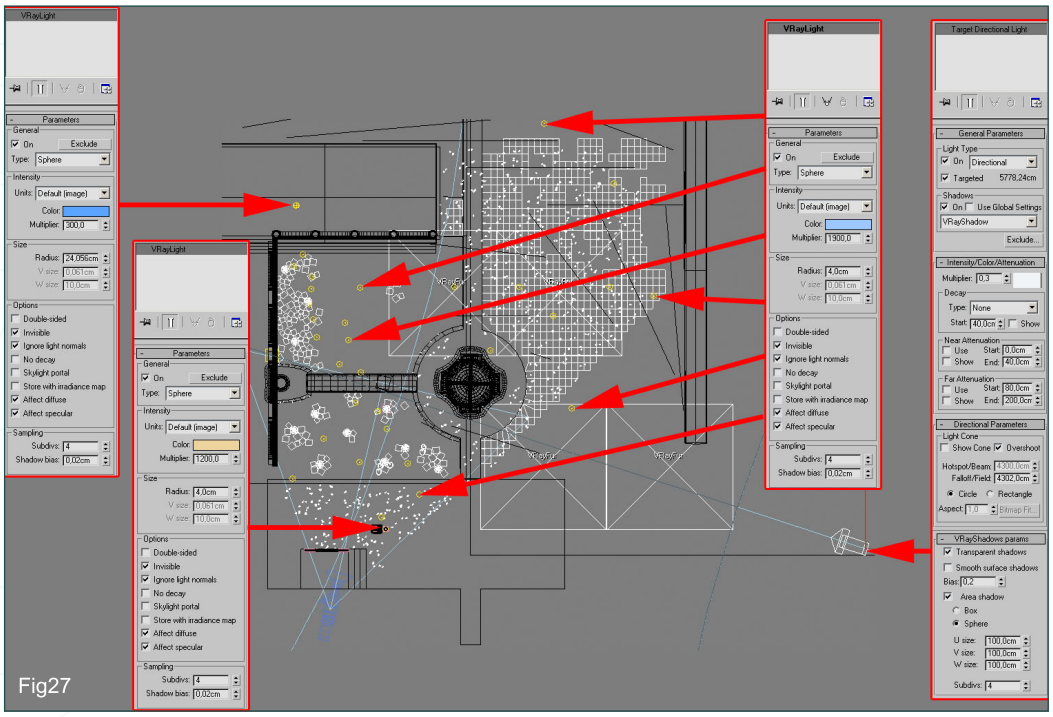
diffuse channel (Fig.22). To do the texturing for the pillars or columns, again I used a map from Volume 9 (3DTotal Textures Collection). This time it was: 'greek_roman002'. The process of texturing was similar to the previous one: ambient occlusion in multiply mode, and the dirt, but here I added more dirt layers, especially on the top, bottom, and underneath the top part, and also above the basement of the column. I didn't make different textures for each pillar, so I just did one and then rotated the pillars. Again, I used bump and specular from the 3DTotal Textures Collection to make these channels (Fig.23). The wall was easy in parts and difficult in other parts to texture. It's a flat wall, so mapping wasn't a problem, but I wanted to make it less flat and more 3-dimensional, so I decided to apply displacement and make the wall irregular. I used three different maps as base textures: 'medieval023' and 'medieval016' from Volume 9 and 'architecture006' from Volume 14 (3DTotal Textures Collection). I had to unify colours and the lightness of these three textures to blend them into one wall. I also added global dirt to the whole texture using mainly maps from Volume 5 (3DTotal Textures Collection), and then I placed some dirt at the bottom and top of the wall and upon the relief. To achieve a good bump/displace map I had to merge and blend three bump maps, corresponding to the case texture from the diffuse channel. I used levels to tune the lightness (Fig.24).

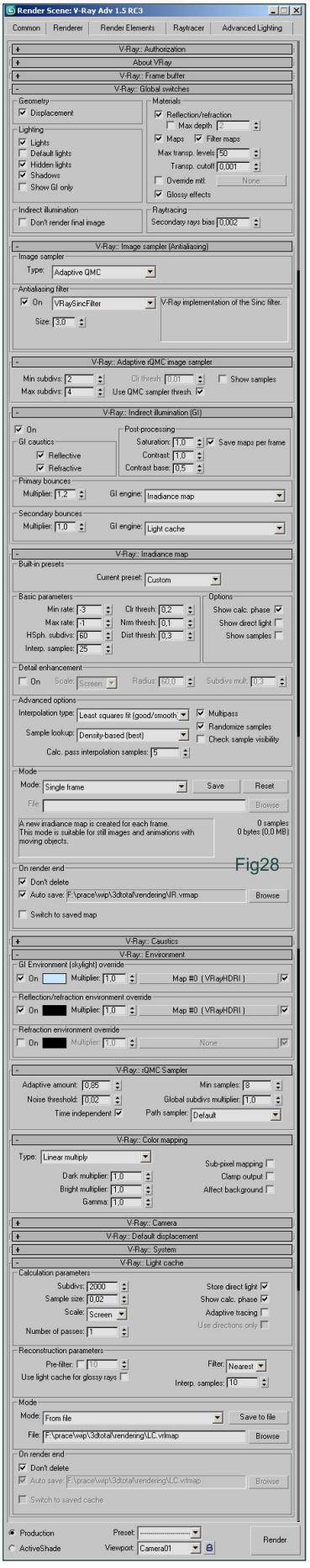
STAIRS

The stairs are the object closest to the camera in my scene, so they must have a nice texture. As a base I used one of the tiles from Volume 6 (3DTotal Textures), which is a clean texture, so I needed to add some dirt to it. Ambient Occlusion was good, but insufficient. I placed a few dirt masks from Volume 5 (3DTotal Textures) in different modes (multiply, normal, screen), and some of them I masked with hand-painted masks. I didn't care about the whole surface of the texture because the most important part was only the visible area. I prepared bump and specular maps based on


Fig25







adequate textures from the 3DTotal Textures Collection, and on layers from the diffuse channel (Fig.25).

BOOK The book was a very nice object to texture. Unwrapping was fast and simple and the texturing process didn't take too much longer. I didn't have a texture of an old paper in my library, so I had to make one. I started with a solid colour layer, then I applied some textures from Volume 13 (3DTotal Textures: New Zealand series) in screen and multiply mode. I also used colourized dirtmaps from Volume 6 (3DTotal Textures) to add more dirt. As usual, I placed AO layer in multiply mode. Then I added symbols from Volume 14 (3DTotal Textures), and several scribbles using a tablet (Fig.26).

LIGHTING AND RENDERING

(Fig.27). I'm a VRay user, so I used the newest version of this renderer, 1.5 RC3, to render my scene. There are many nice features and improvements in this version, some of which I have already mentioned. I used GI with an Irradiance Map to start, and LightCache for secondary bounces. There is nothing extraordinary in the settings (Fig.28). I decided to render my image by splitting it into a few passes, which gave me more control in post production because I could compose them in the final image and keep control on each pass separately. Another good thing is using passes to diagnose the source of errors in rendering, so you can easily find the error or artifact on one pass, and then fix it. Setting it up is easy; you have to choose elements/passes from the list, and remember to set the

correct numbers for ZDepth: zdepth min and zdepth max. Typically, to compose the final render, you'll need: VRayGlobalIllumination, VRayLighting, VRayReflection, VRayRefraction, VRaySpecular and VRaySelfIllumination.
I didn't render VRayRefraction and VRaySelfIllumination because I didn't have any refractive and/or self-illuminating materials in my scene, so I rendered VRayAlpha (which is just a simple alpha mask) and VRayZDepth, because I wanted to add a depth of field effect in Combustion (Fig.29-30).

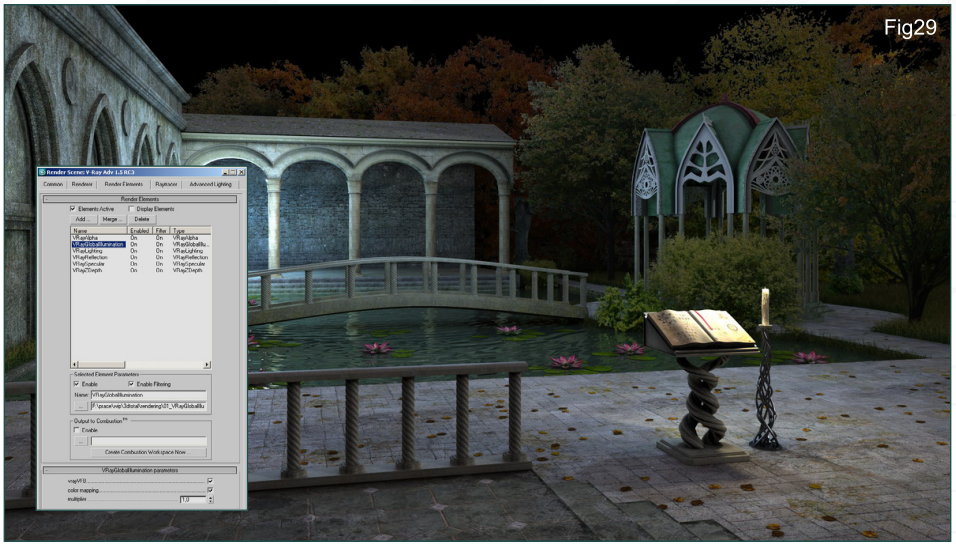

Fig29


Fig30

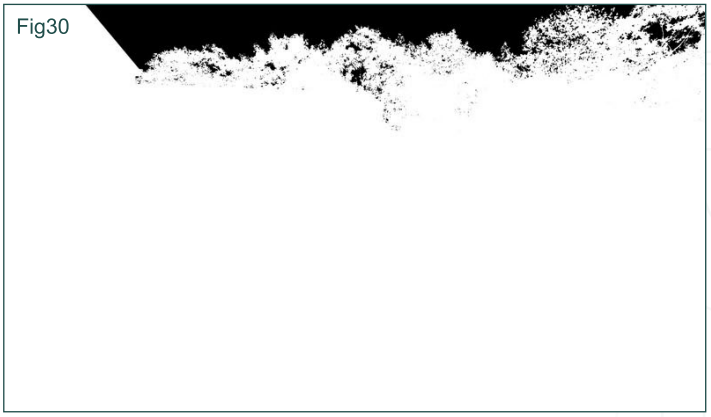

Fig30

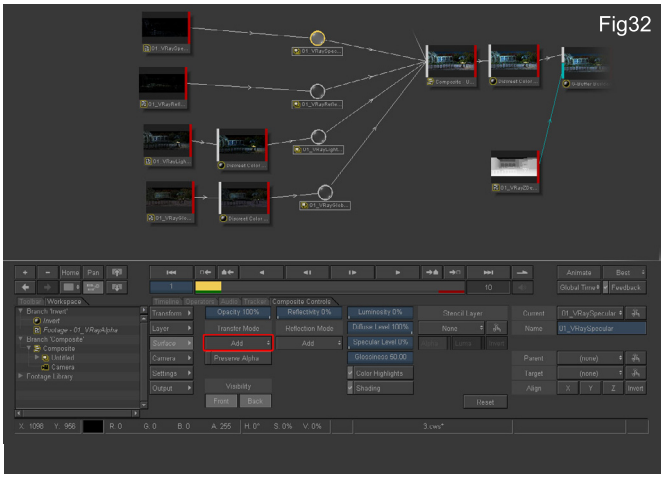

Fig30

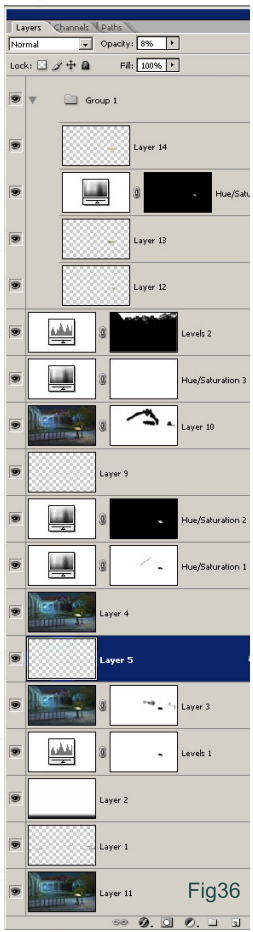

Fig30


Fig30


Fig30


Fig31


Fig32


Fig36

POST PRODUCTION:

I decided to use Combustion for post processing. I wanted to add some particle effects, depth of field, and colour correction. I'm just a beginner, not an experienced user, so it wasn't easy for me to do all these things in Combustion, but I wanted to learn it. I won't describe the full process, just a few stages, because I'm not a specialist in Combustion (Fig.31). The first thing was to merge the rendered passes into a final image, which I did by composing them in the Add Transfer Mode. I applied some colour correction to the lighting and GI (using Discreet Colour) (Fig.32). I had to build G-Buffer, however, it was quick and easy because I had only one additional channel: Z Buffer (Fig.33). I added a little depth of field effect to blur the nearest objects (Fig.34). I added particle effects: blue sphere, blue magic trails, candle flame, and a little lens flare to it. I also added 'night sky' from Volume 14 (3DTotal Textures), using a rendered alpha channel. I wasn't one hundred percent satisfied with the effect, so I added small changes and corrections in Photoshop (Fig.35 & 36).

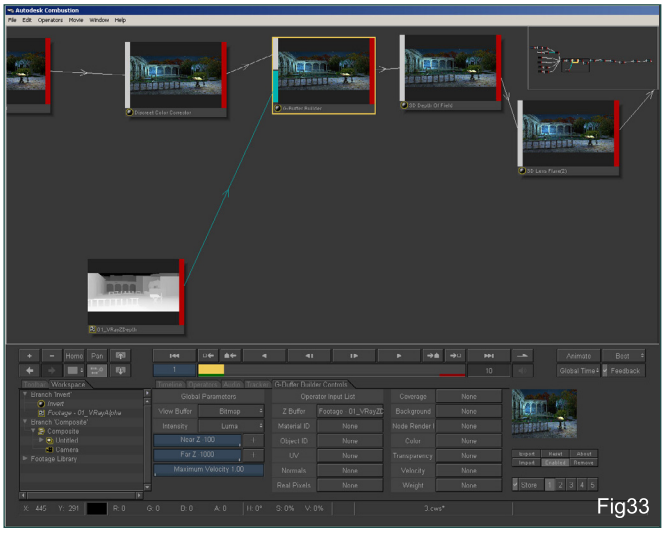
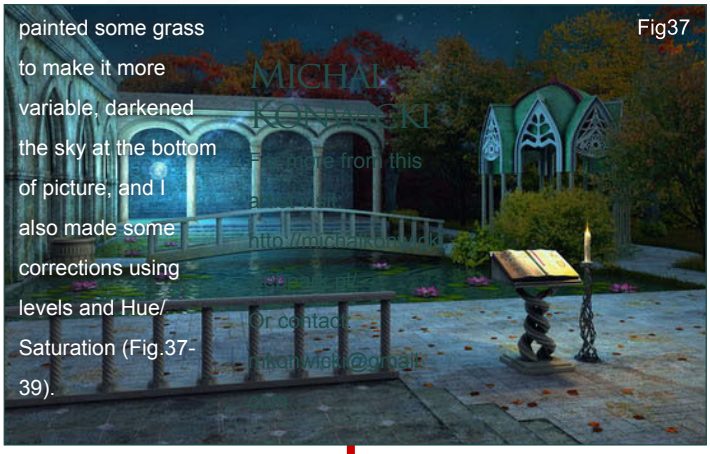

Fig33


Fig35


Fig34

painted some grass to make it more variable, darkened the sky at the bottom of picture, and I also made some corrections using levels and Hue/ Saturation (Fig.37-39).

Fig37









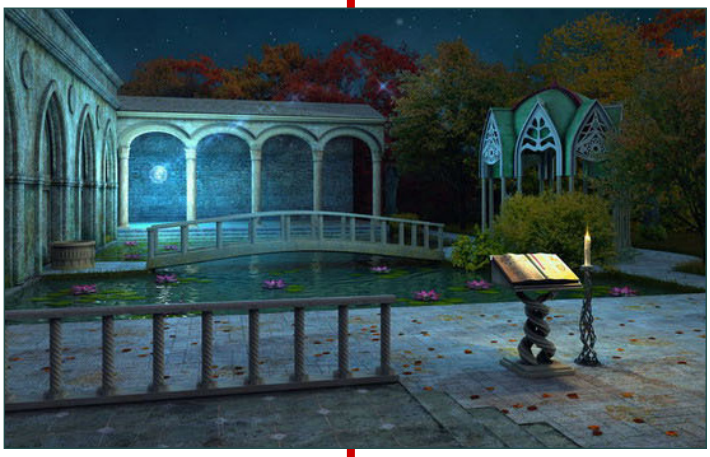












Fig38



Fig39



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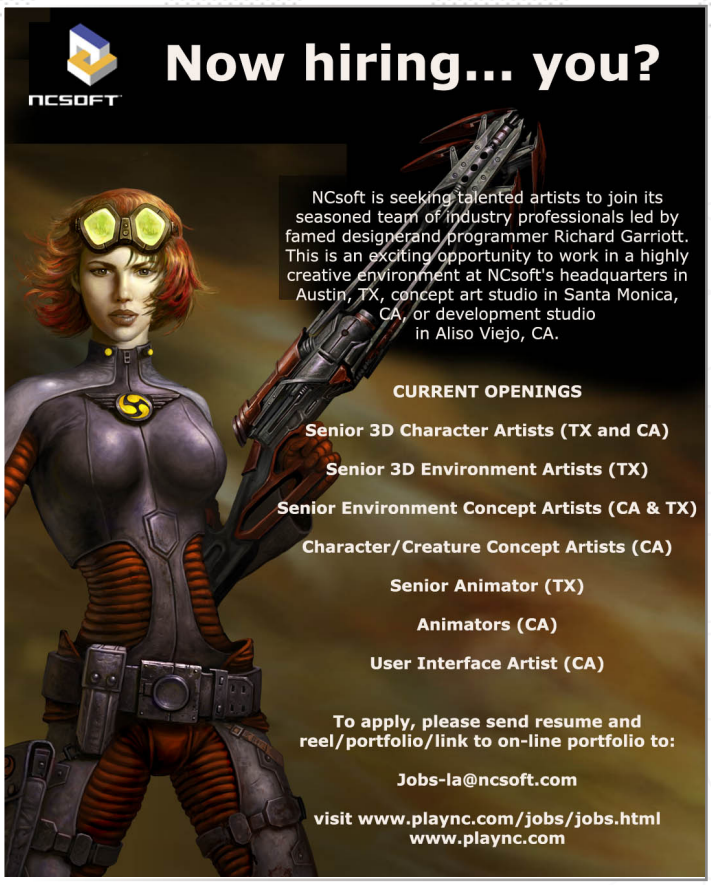
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Tuc-Tuc

3ds max

Is our new precise, step-by-step tutorial which will begin with a vehicle model and cover the principals of applying shaders, placing it in a simple scene and following with a two-part section on both lighting and rendering. The tutorial will begin by creating and applying materials for the various parts of the car, such as glass, chrome and tyres, as well as texturing some simple geometry that will make up a scene. It will then move onto lighting where the focus will be on setting up a lighting rig and the various parameters connected to this. Finally the series will culminate with a section on rendering, where the aim will be to finish with a polished image. The schedule is as follows:

Issue 017 January 2007
Applying Materials & Shaders Part 1

Issue 018 February 2007
Applying Materials & Shaders Part 2

Issue 019 March 2007
Lighting Setup & Rig (with HDRI) Part 1

Issue 020 April 2007
Lighting Setup & Rig (with HDRI) Part 2

Issue 021 May 2007
Rendering Part 1

Issue 022 June 2007
Rendering Part 2

Enjoy ...

Assigning Materials & Shaders - Part 2

This month we'll complete the work on the materials and shaders we have set in the first part of the tutorial. Some minor changes and fine-tunings will be done later on in the other parts, but for now we will define the main aspects of every material of the vehicle. We'll need some additional mental ray free shaders. You can download them from the net, at the following URL:
http://newsletters.hagerman.com/newsletters/Images/Ebul%2042/max%20article/max_mrt.zip

After downloading the file, extract it somewhere on your hard drive and then copy the mrt.dll file into \Autodesk\3dsMax8\mentalray\shaders_autoload and the other two .mi files into \Autodesk\3dsMax8\mentalray\shaders_autoload\include.

01. Let's start from the Glass material. Click on the "Standard" button and choose Mental Ray as the type of material. Click on the Surface slot and choose Glass (Lume), as shown in Fig.01. Also put a Photon Basic (base) shader into the Photon slot.

02. Click on the Glass (Lume) slot to open its parameters. Set the Diffuse and the Surface Material to the same blue-ish colour. Go to the Blur Reflection tab, check the On option and set the Spread value to 2,0 and the Samples to 6. Click on the small squared slot next to Transparency and select a Falloff map from the browser.

03. Open the Falloff map parameters and modify the falloff curve as shown in Fig.03. You may have to add a couple of new points on the curve to achieve the effect.

Fig 01

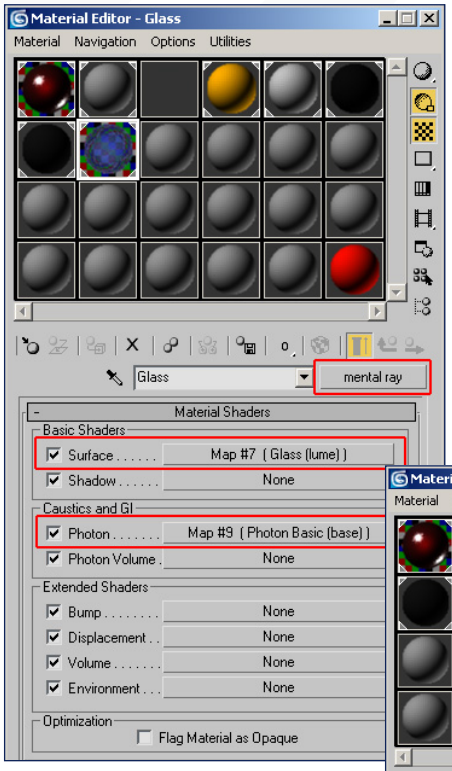


Fig 02

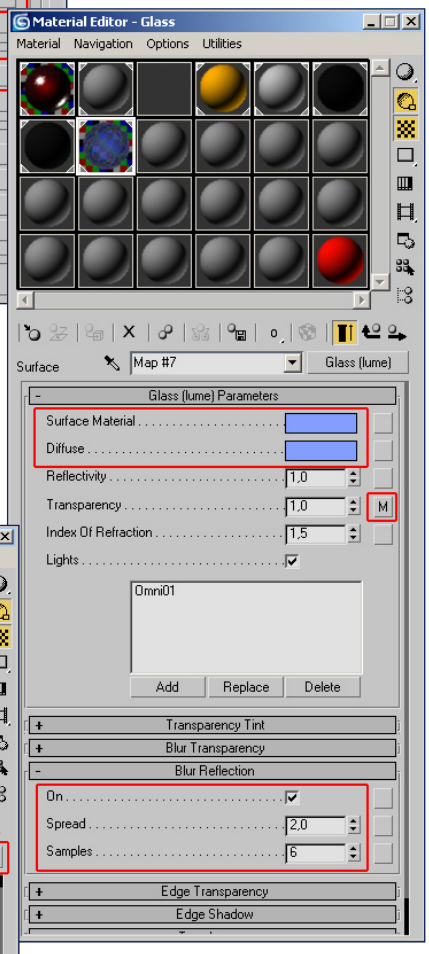
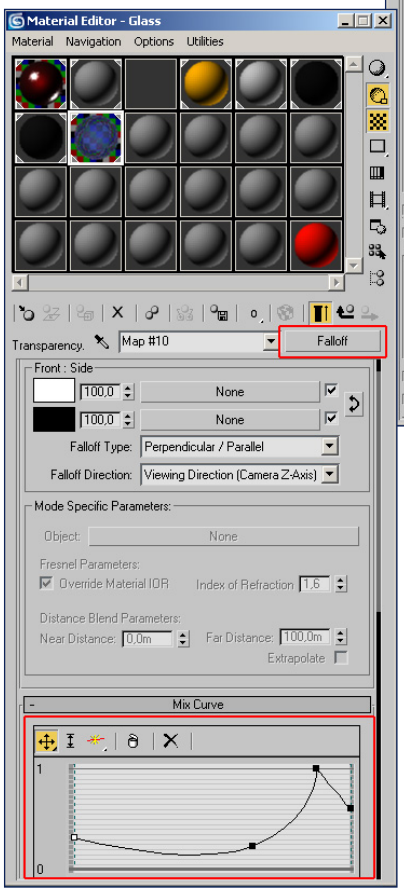


Fig 03



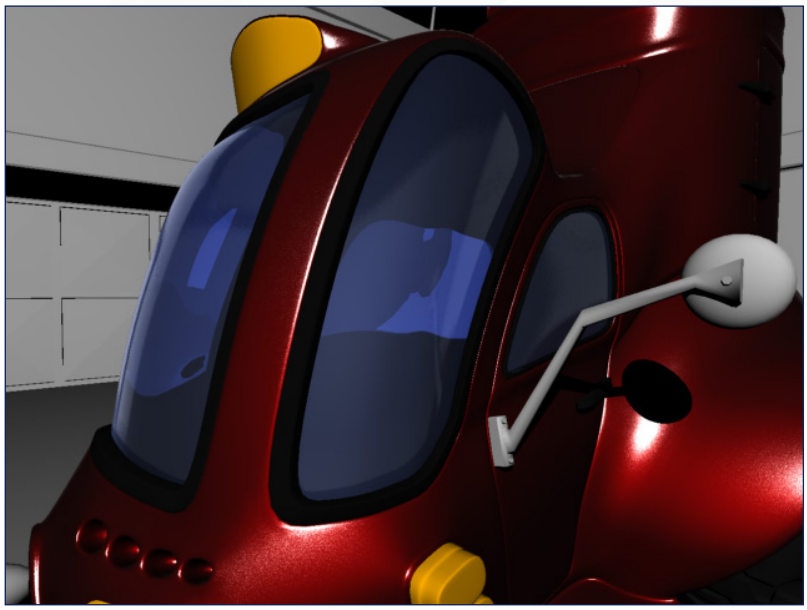


Fig 04

04. Render the scene and see how the glass looks. If you don't like the blue-ish colour, you can simply change the Diffuse and Surface Material colours in the Glass (Lume) tab.

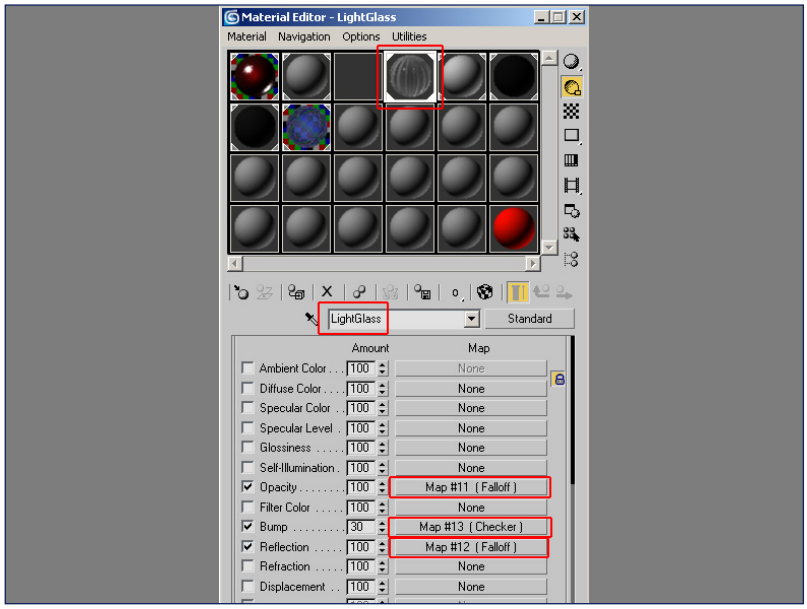


Fig 05

05. Now let's take care of the lights' glass. Leave the material as Standard. Put a Falloff map into the Opacity slot, a Checker map into the Bump slot and another Falloff map into the Reflection, as shown in Fig.05. Now we'll see how to change their parameters.

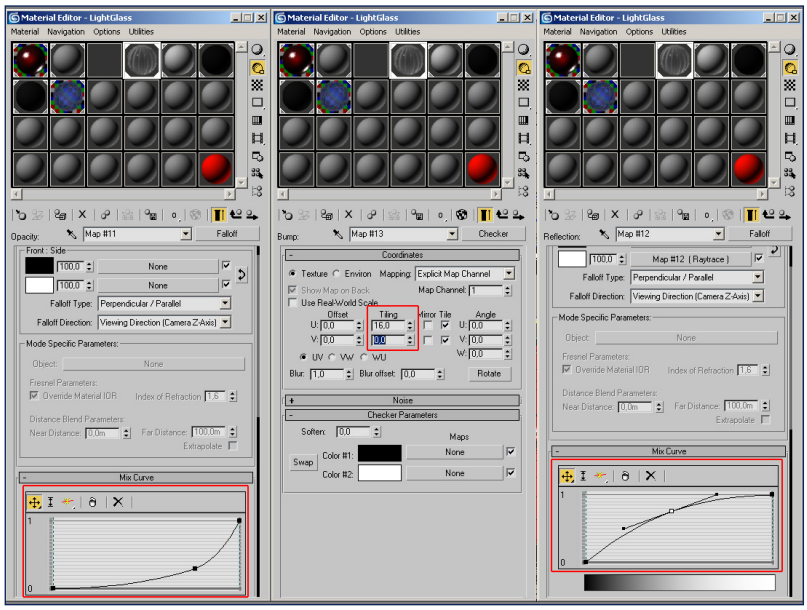
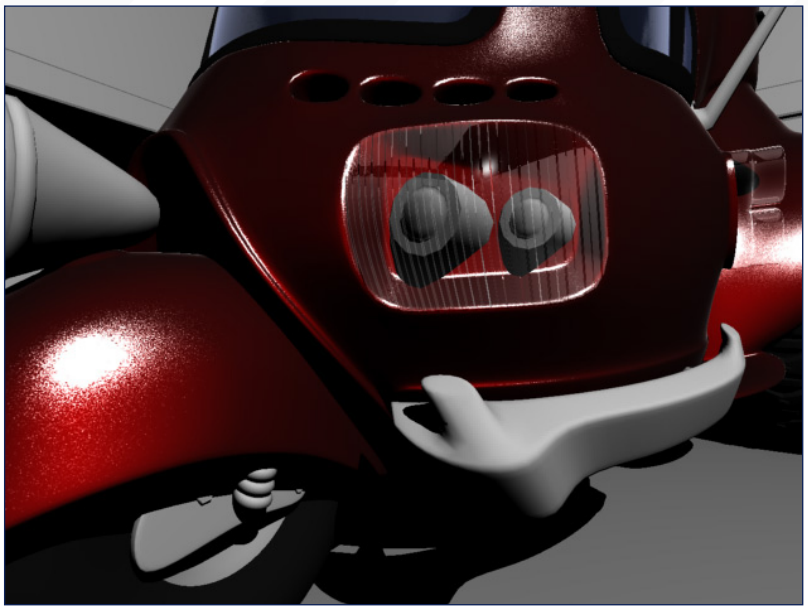


Fig 06

06. In Fig.06 you can see the parameters for each map you just put into the material's slots. Change the first Falloff curve for the Opacity, as shown on the left part of Fig.06. Go to the Checker map options and change its tiling to 16,0 / 0,0 (centre part of Fig.06). Finally, change the curve for the Falloff map to Reflection (right part of Fig.06).

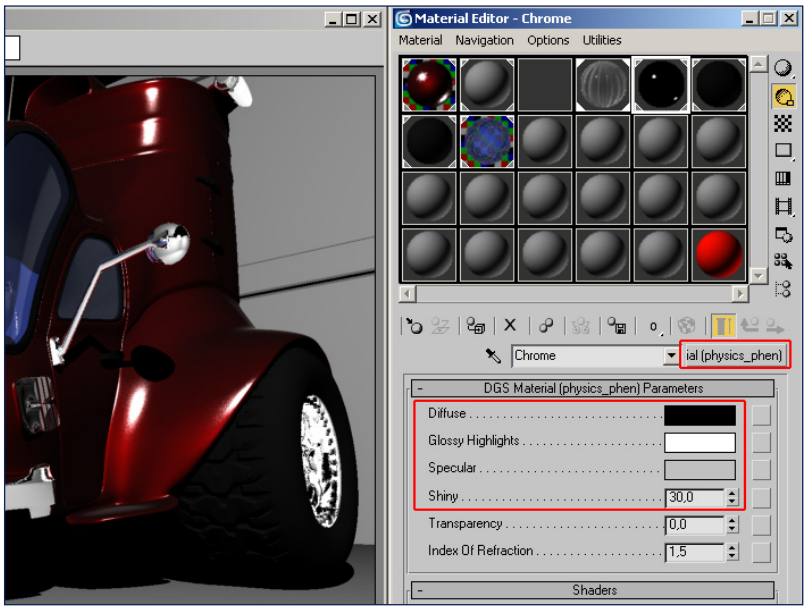
07. Render the scene again. You should have something similar to Fig.07. If there is too much specularity on the glass, just change the values of the Specular and Glossiness of the Light Glass material.

Fig 07



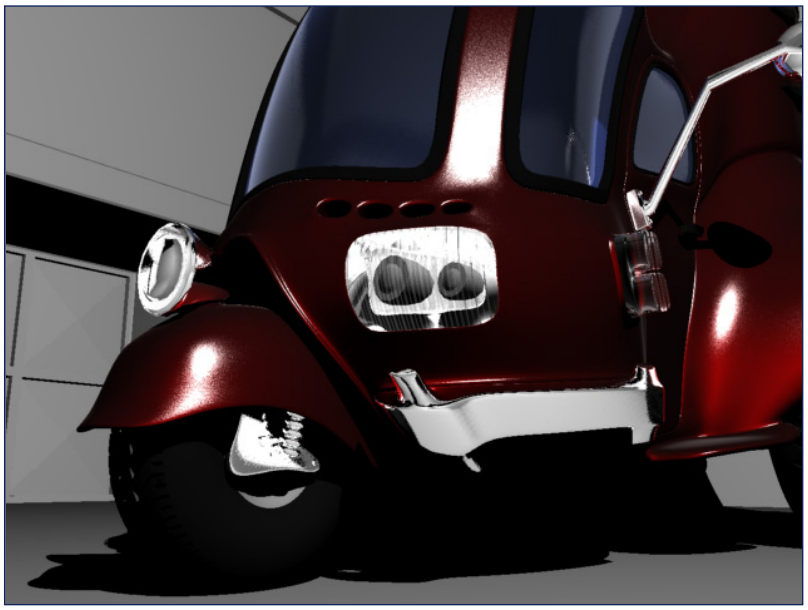
08. Select the Chrome material. Change its material type to DGS (physics_phen) and modify its parameters, as shown in Fig.08. See the Diffuse to pure black; Glossy Highlights to pure white and Specular to a bright grey. Also, change the value of Shiny to something like 30. Render the scene and have a look at how the chrome parts behave.

Fig 08



09. Let's go back to the front lights' area. Select the inner part of the front light, detach it from the main vehicle body, and assign the Chrome material to it. Render the scene again. The Chrome material gives some nice reflections into the front light area. Repeat the process for the other front light, too.

Fig 09



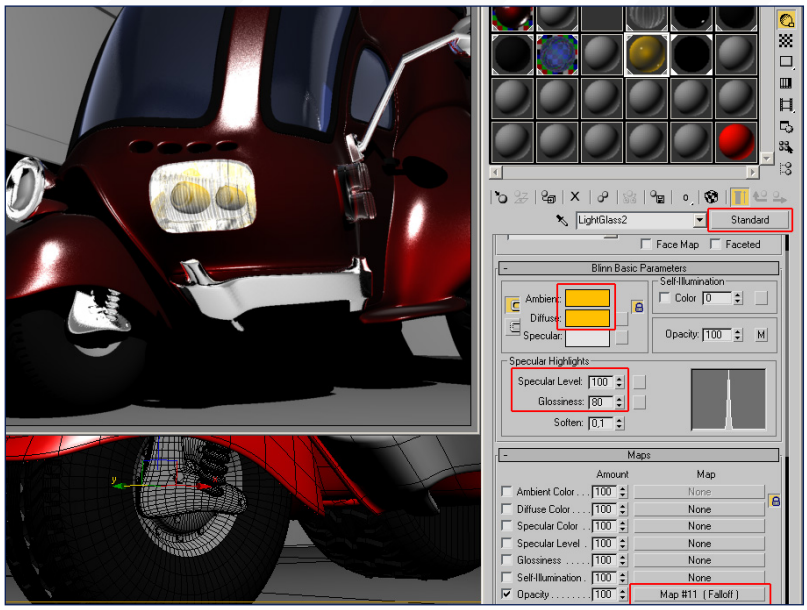


Fig 10

10. Select the lights' material, change the colour to a bright orange (or any other colour you like), and change the Specular Level to 100, and Glossiness to 80. Also, add another Falloff map to the Opacity slot (Fig.10).

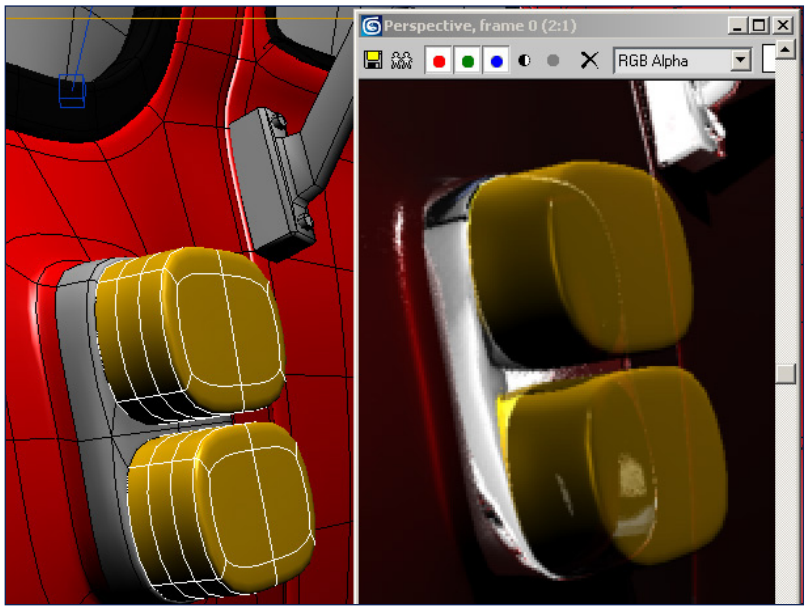


Fig 11

11. Select the side light. Detach the part of the mesh marked with the white wireframe in Fig.11, and assign the light material to it. Assign the Chrome material to the rest of the mesh, and do a test render. Repeat the process for the other side light, too.

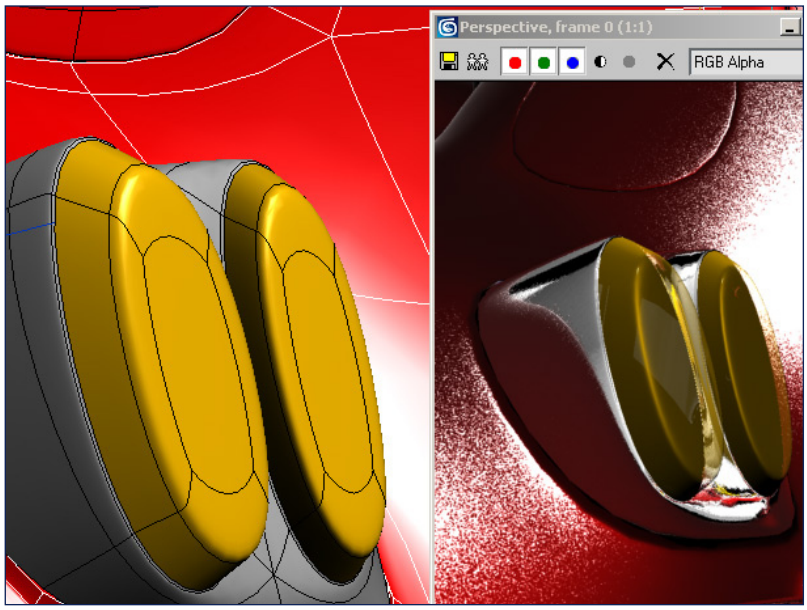
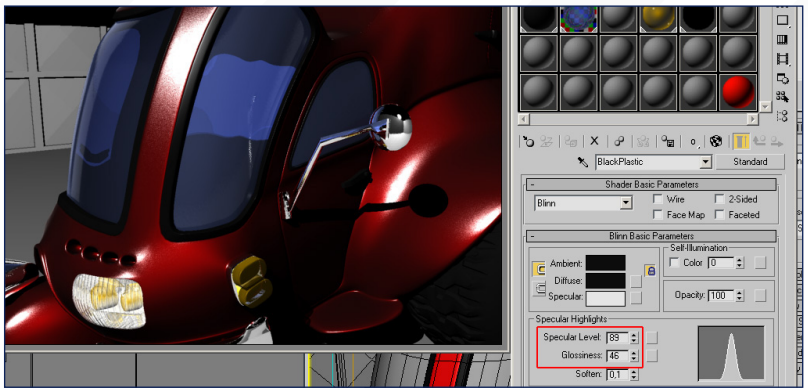


Fig 12

12. Do the same thing for the back lights. Assign the orange material to the detached part of the mesh, and the Chrome material to the rest. Once again, do a test render to see what happens (Fig.12).

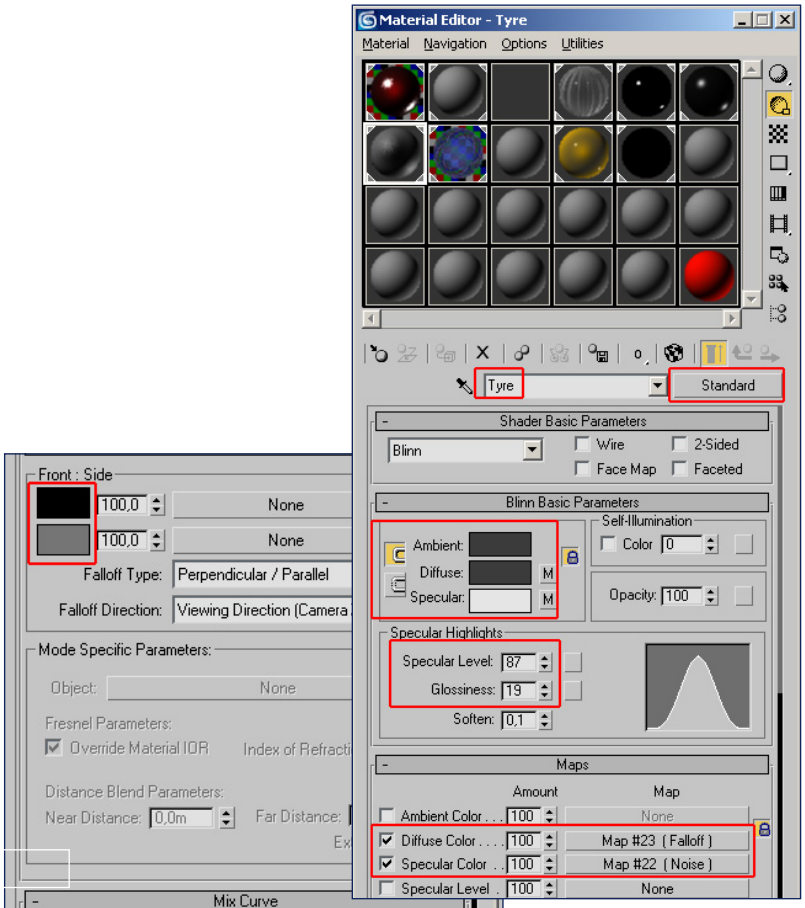
13. The black plastic material is quite simple. Just set its colour to pure black, and change its Specular Level to 89, and its Glossiness to 46. See how it behaves in the rendering (Fig.13).

Fig 13



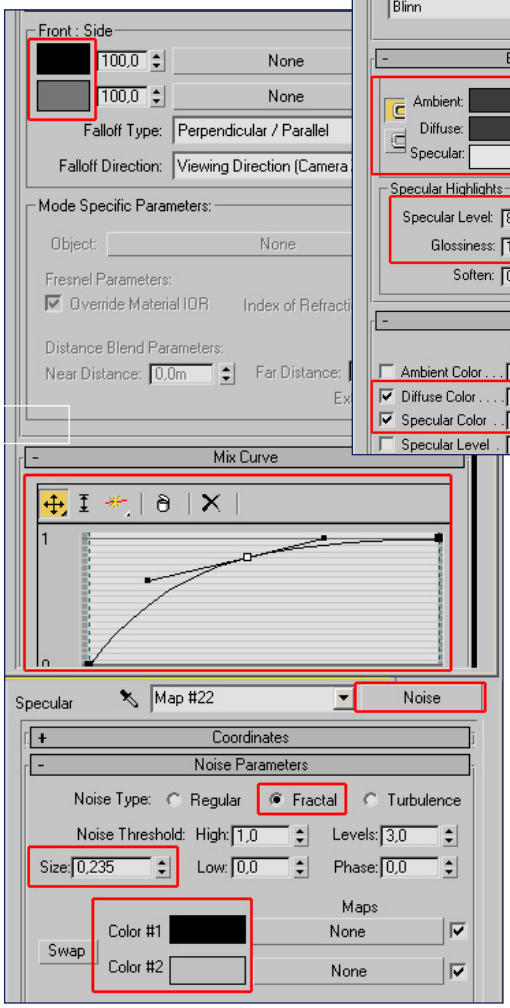
14. Now let's take care of the tyre shader. Leave it as Standard material. Set its Ambient and Diffuse colour to a dark grey. Change its Specular Level to 87 and its Glossiness to 19. Assign a Falloff map to the Diffuse Colour slot and a Noise map to the Specular Colour (Fig.14).

Fig 14



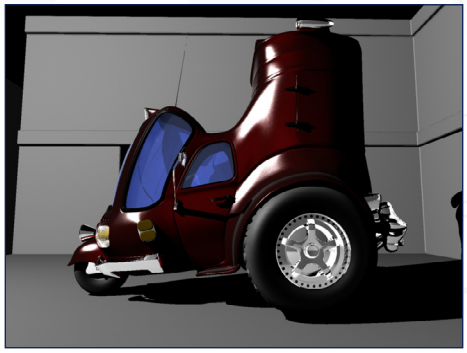
15. Modify the Falloff map, as shown in top part of Fig.15 (set the two colours to pure black and dark grey, and modify the falloff curve to get something similar to Fig.15). Go to the Noise map parameters and set the type to Fractal. Change the Size to 0,235 (please note that it depends on your scan size and units, so you may have to try different sizes for the noise). Also, change the Noise colours to pure black and bright grey (bottom part of Fig.15).

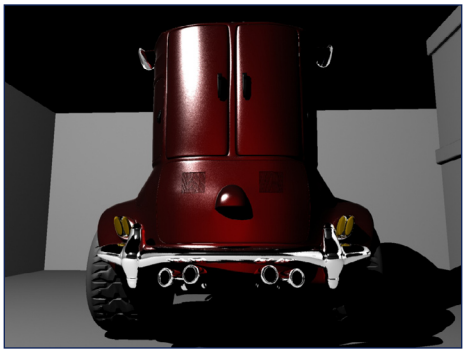
Fig 15

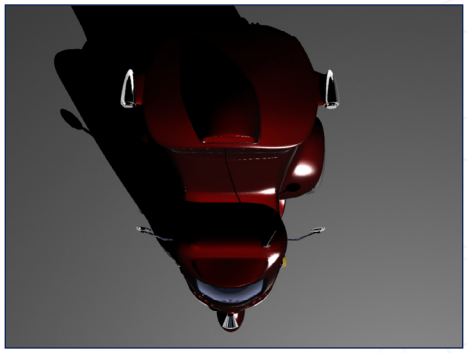


16. Here are some renders from different views of the model. Now you can use your own photographic textures on the environment. In this tutorial we'll concentrate only on the vehicle materials and shaders, so you are free to use every texture you want for the environment.









TUC-TUC

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Tuc-Tuc

CINEMA 4D

Is our new precise, step-by-step tutorial which will begin with a vehicle model and cover the principals of applying shaders, placing it in a simple scene and following with a two-part section on both lighting and rendering. The tutorial will begin by creating and applying materials for the various parts of the car, such as glass, chrome and tyres, as well as texturing some simple geometry that will make up a scene. It will then move onto lighting where the focus will be on setting up a lighting rig and the various parameters connected to this. Finally the series will culminate with a section on rendering, where the aim will be to finish with a polished image. The schedule is as follows:

Issue 017 January 2007
Applying Materials & Shaders Part 1

Issue 018 February 2007
Applying Materials & Shaders Part 2

Issue 019 March 2007
Lighting Setup & Rig (with HDRI) Part 1

Issue 020 April 2007
Lighting Setup & Rig (with HDRI) Part 2

Issue 021 May 2007
Rendering Part 1

Issue 022 June 2007
Rendering Part 2

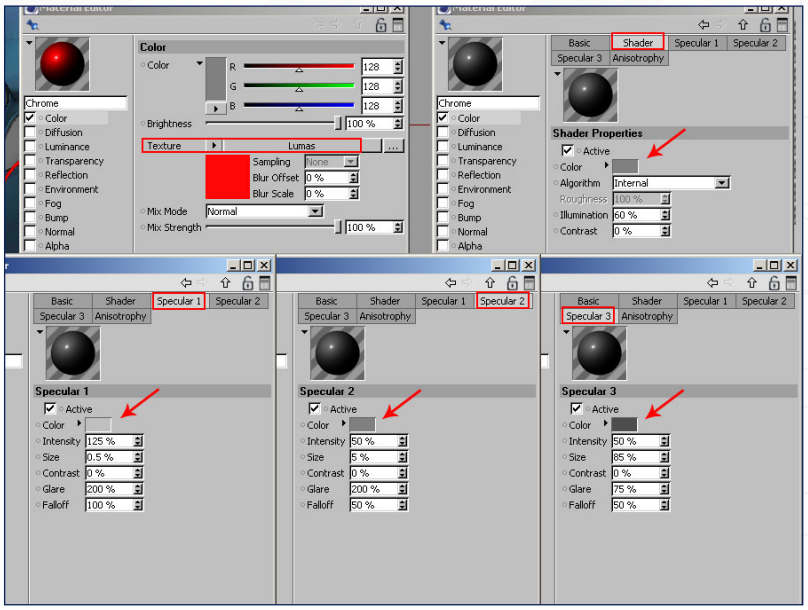
Enjoy ...

Assigning Materials & Shaders - Part 2

Applying Materials & Shaders: Part 2

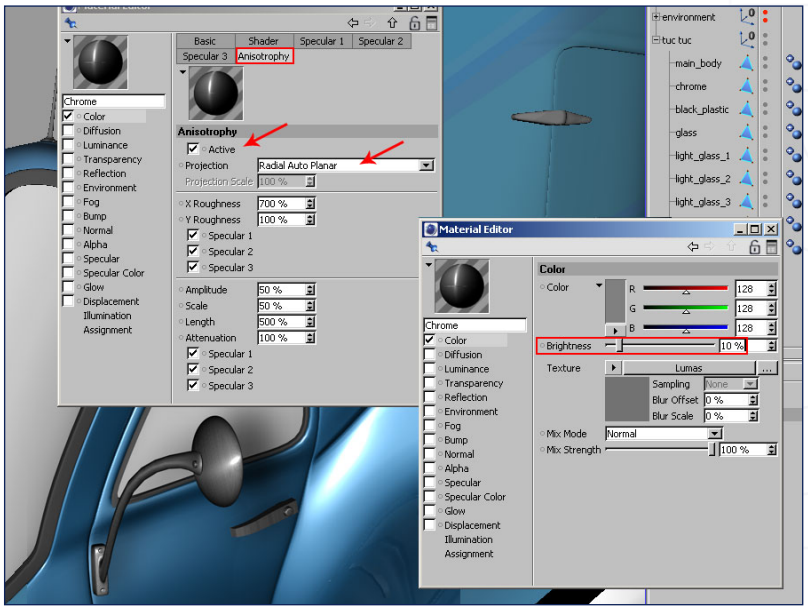
1. In this second part of tutorial we will continue making the remaining materials of the car. So let's start with the Chrome material. As for the main_body material, we will use the Lumas Effect. Double-click on Chrome material to open the Material Editor. In the Colour Channel load the Lumas (Effects > Lumas), as shown in Fig.01. Change the colours of the Shader, then change the colours of the three Speculars, as seen in Fig.01.

Fig 01



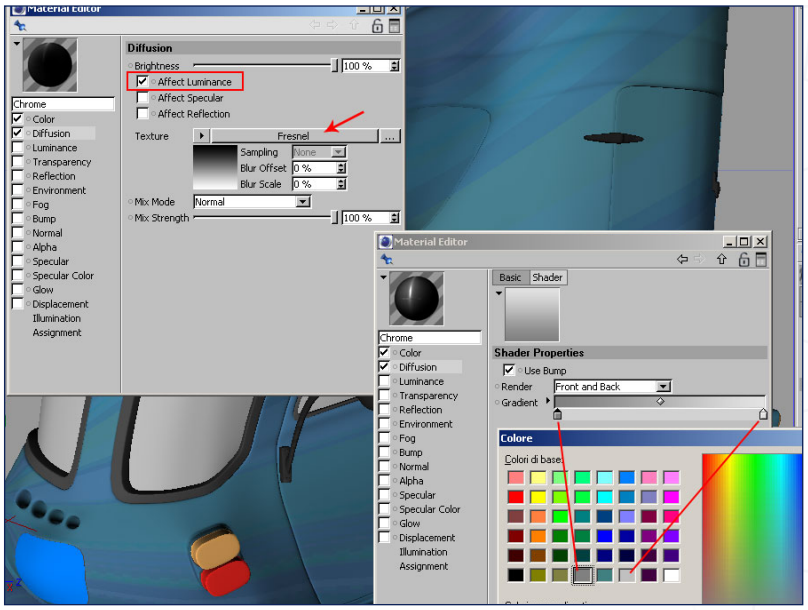
2. Turn on the Anisotrophy, which will give the material a look similar to steel (Fig.02). Change the Projection, as seen in Fig.02. Return now to the colour channel and decrease the Brightness to 10%. On the bottom left of the figure you will notice a render region, just to see how it's going.

Fig 02



3. In the Diffusion Channel load the Fresnel effect, turn on Affect Luminance and change the colours of the Gradient, as shown in Fig.03. This will give you more control over the light and dark areas. It will also better define the edges of the objects.

Fig 03



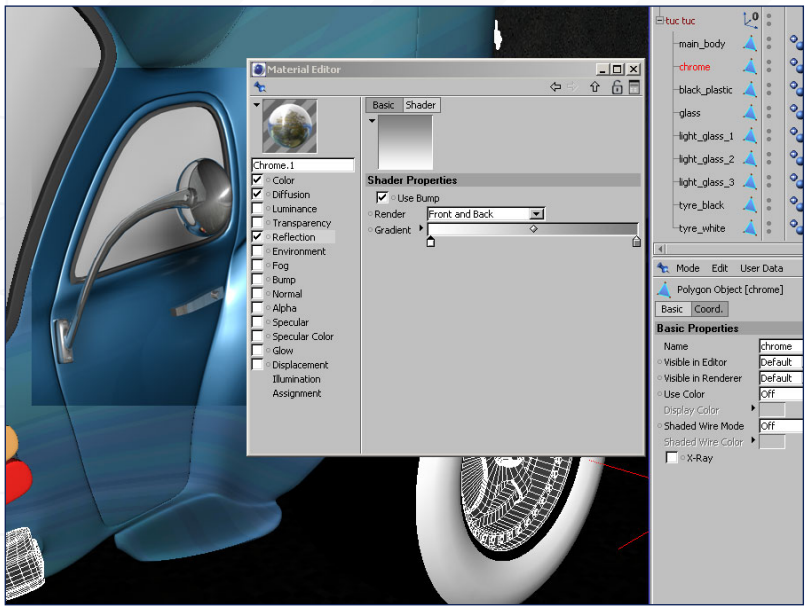


Fig 04

4. Turn on the Reflection Channel. Once again, load the Fresnel effect in this channel. This time the Gradient will be from white to grey, as seen in Fig.04. On the left of the image you will see a render region.

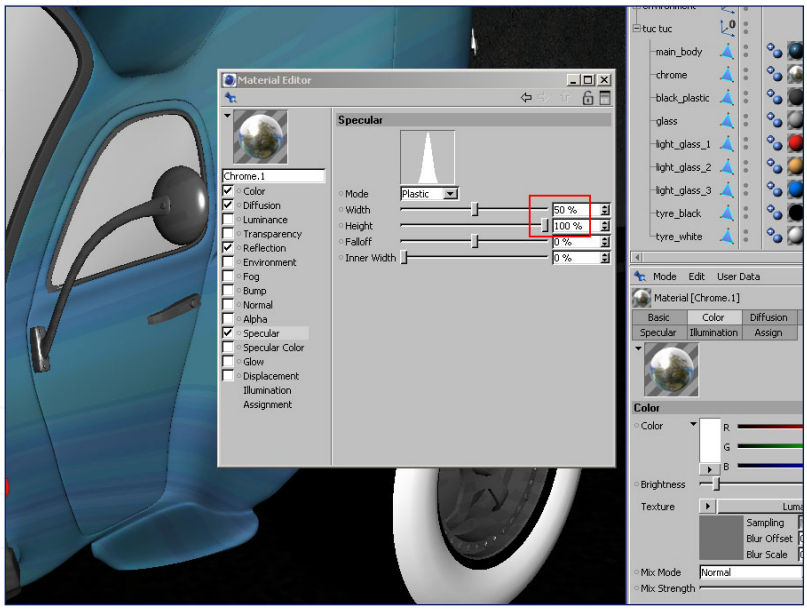


Fig 05

5. The last step for the Chrome material is to activate the Specular Channel and to modify the parameters, as shown in Fig.05.

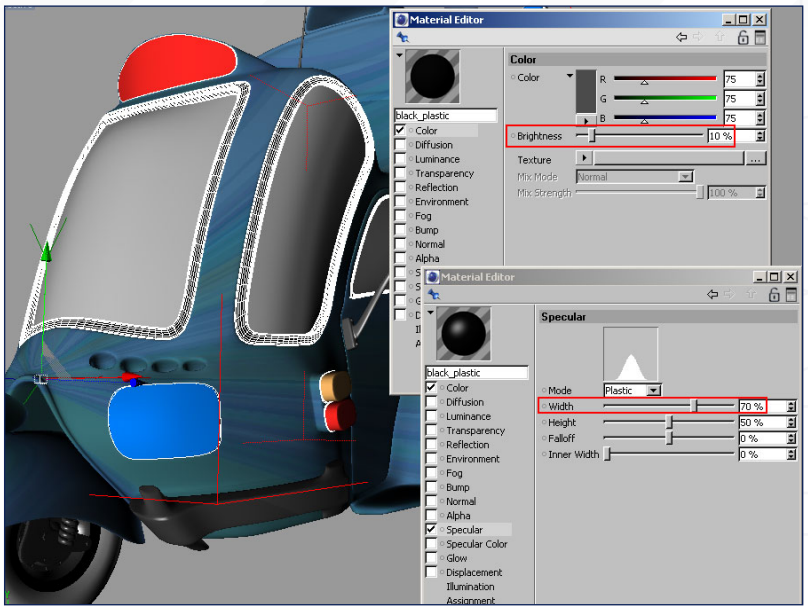


Fig 06

6. Make a render to see how it's going (Fig.06).

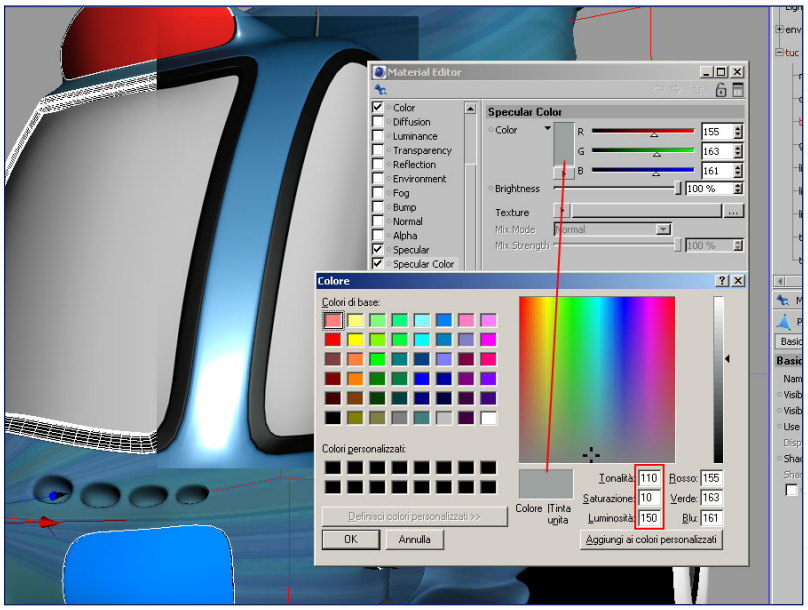
7. Let's work now on the Black_plastic material. Open the Material Editor and decrease the Brightness to 10%. Turn on the Specular channel and set the Width to 70%, as shown in Fig.07.

Fig 07



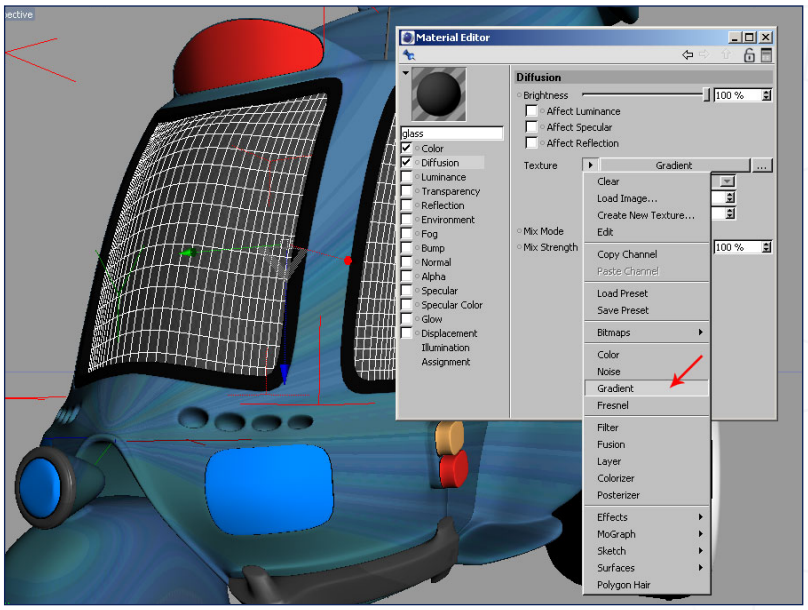
8. Activate the Specular Colour channel and change the standard colour, as seen in Fig.08. On the left of figure you can see a render of a region. That is all for this material.

Fig 08



9. Open the Material Editor of the Glass material and change the Colour to white. Turn on the Diffusion channel and load the Gradient effect, as shown in Fig.09.

Fig 09



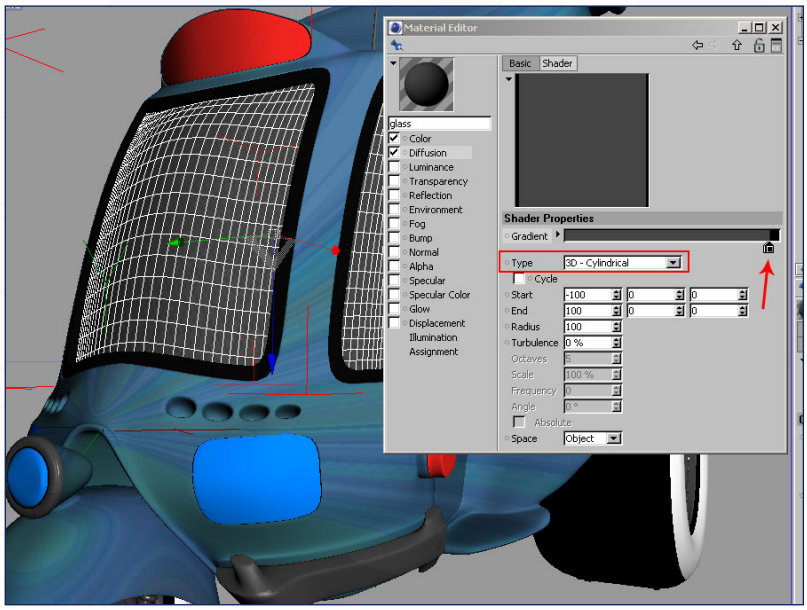


Fig 10

10. Go now into the Shader properties (by clicking on the Gradient tab) and modify the colours of the gradient, as seen in Fig.10. For the first colour choose a very dark grey; for the second colour choose the black and position them as seen in the image. Change also the Type of gradient to 3D - Cylindrical. This effect is different from Fresnel, which we saw in the first part of this tutorial, because the Gradient is not based on geometry's normals, in relation to the camera. So you have to choose the appropriate "type" of gradient.

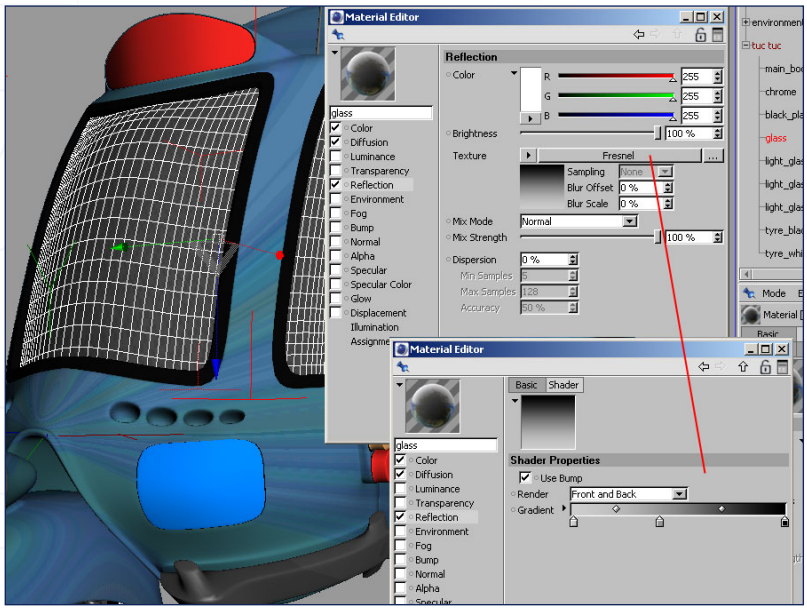


Fig 11

11. Activate now the Reflection channel and load the Fresnel effect. Modify the Gradient, as shown in Fig.11.

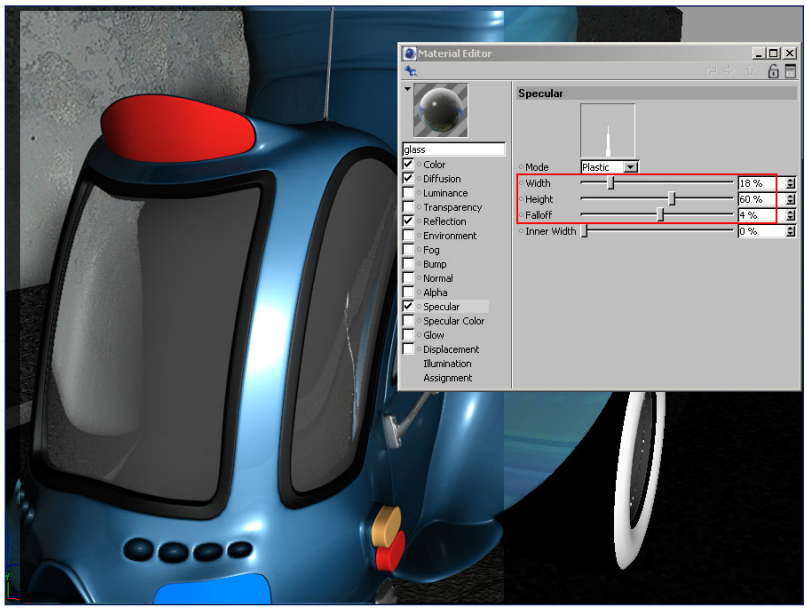
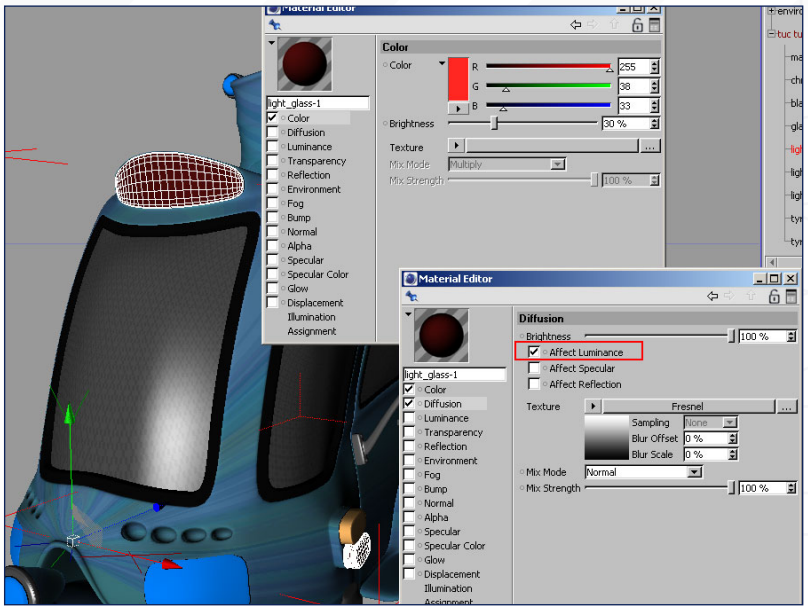


Fig 12

12. This is the last step for the Glass material. Turn on the Specular channel and modify the parameters, as seen in Fig.12. Make a render region to see the result.

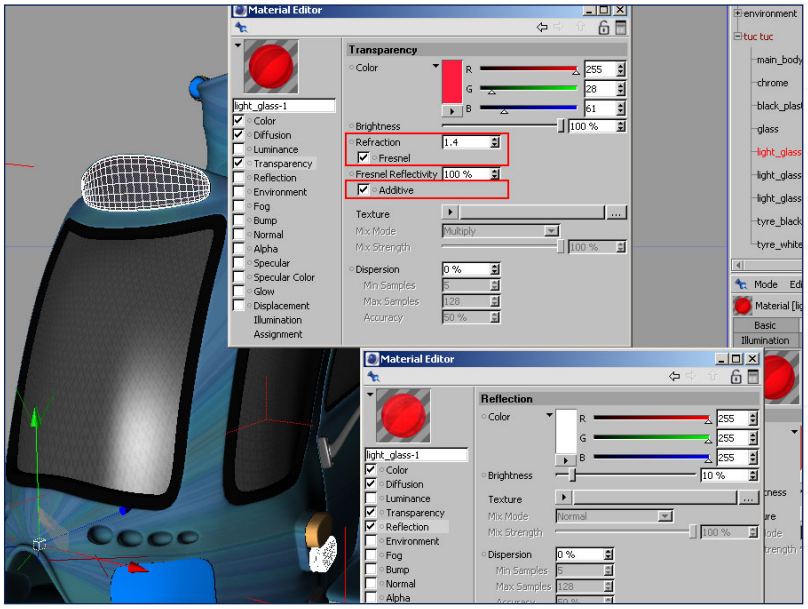
13. Working now on the Light_glass_1 material, change the colour to red and decrease the Brightness to 30%. Turn on the Diffusion, activate “Affect Luminance” and load the Fresnel effect, as shown in Fig.13.

Fig 13



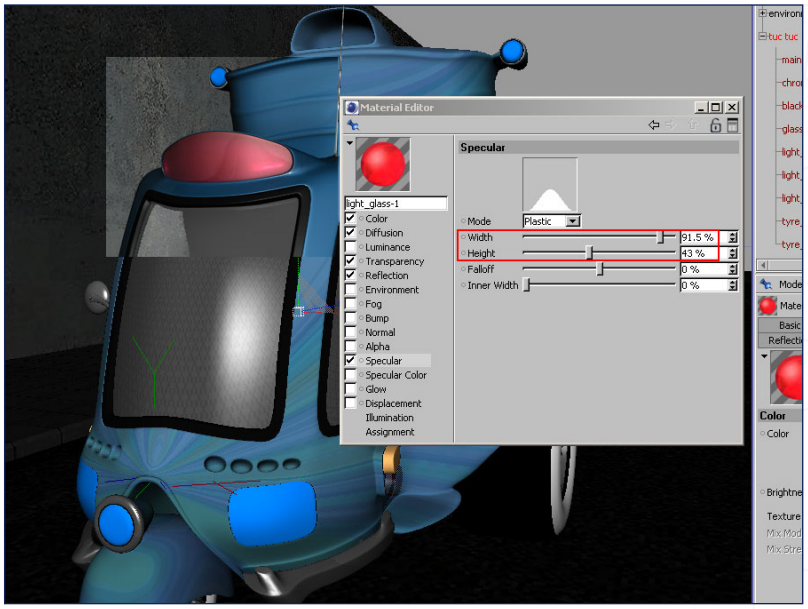
14. Activate the Transparency channel and change the colour to red (Fig.14). Change also the index of refraction to 1.4 and turn on the “Fresnel” and “Additive” options as seen in the image. Enable the Reflection channel and decrease the brightness to 10%.

Fig 14



15. Turn on the Specular and change the parameters, as shown in Fig.15. Here is a render to show us the result.

Fig 15



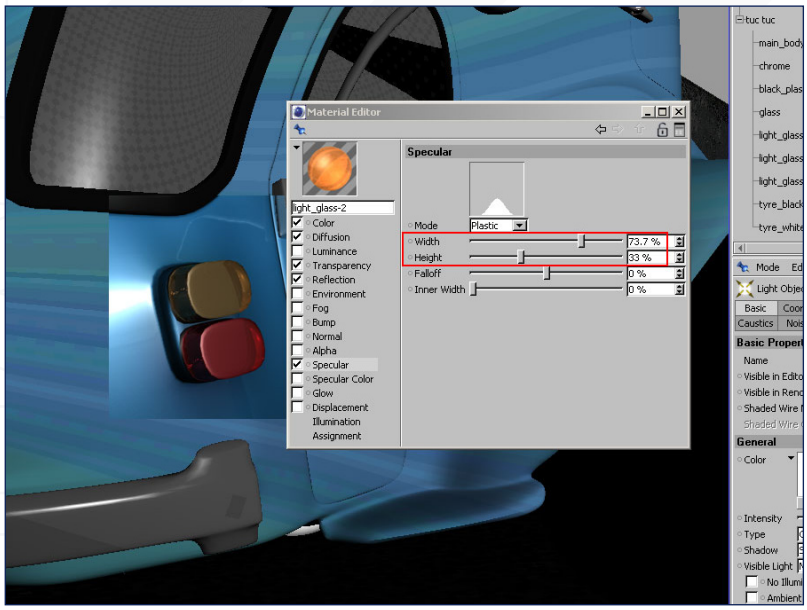


Fig 16

16. The Light_glass_2 is equal to the precedent, just change the parameters of the Specular channel, as seen in Fig.16.

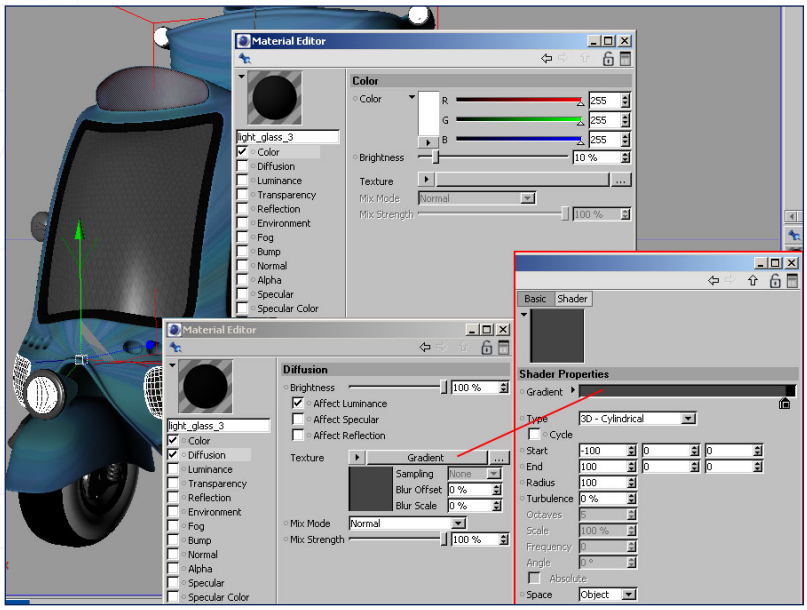


Fig 17

17. Open the Material Editor of Light_glass_3 material. Decrease the Brightness of the colour channel to 10%, then turn on the Diffusion channel. Here load the Gradient effect and modify the gradient, as we did for the Glass material (Fig.17).

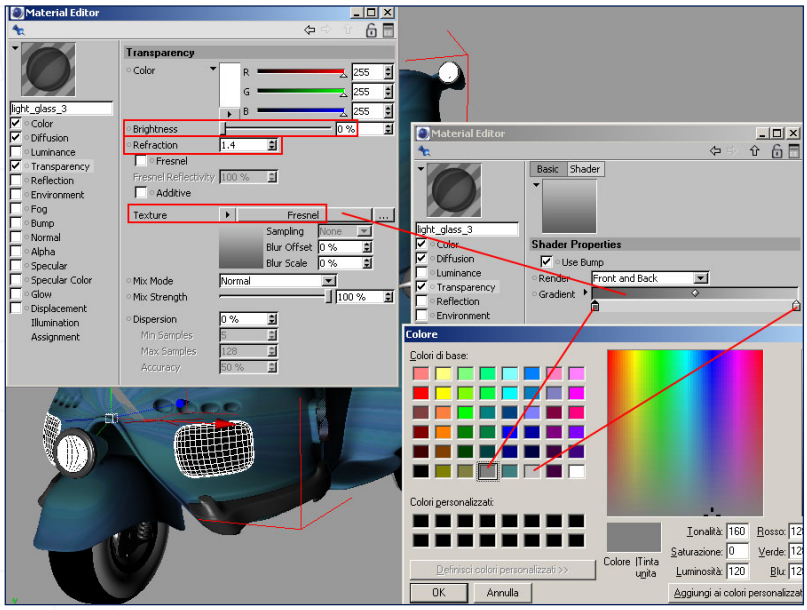
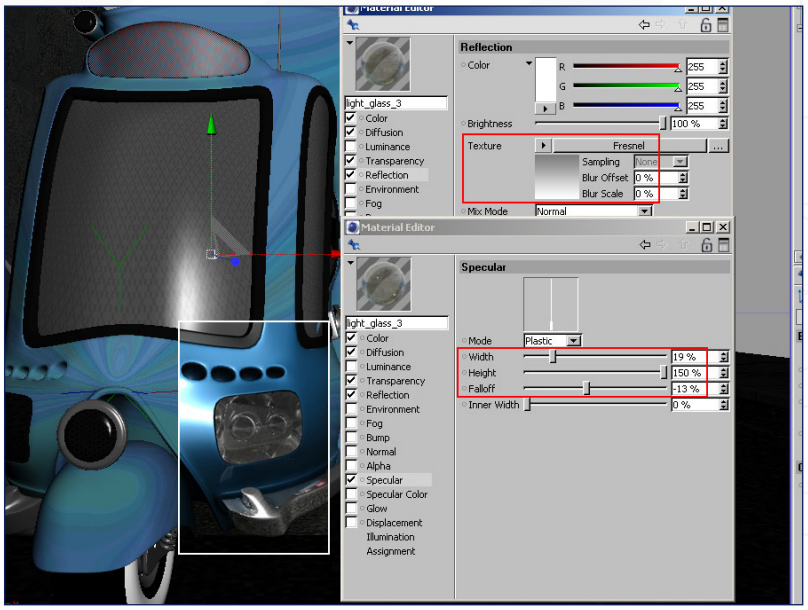


Fig 18

18. In the Transparency channel decrease the Brightness to 0%, change the Refraction to 1.4 and in the Texture load the Fresnel effect. Set the gradient of Fresnel, as shown in Fig.18.

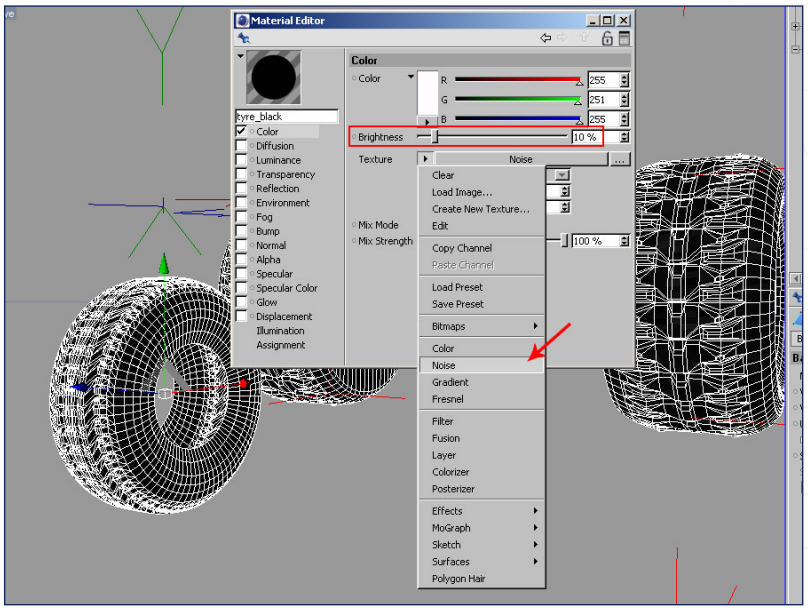
19. Turn on the Reflection and load the Fresnel. Change the colours of the gradient of Fresnel: first colour to white; second colour to light grey. In the Specular channel change the parameters, as shown in Fig.19. On the left of figure (highlighted in white) you can see a render region. That was the last step for the Light_glass_3 material.

Fig 19



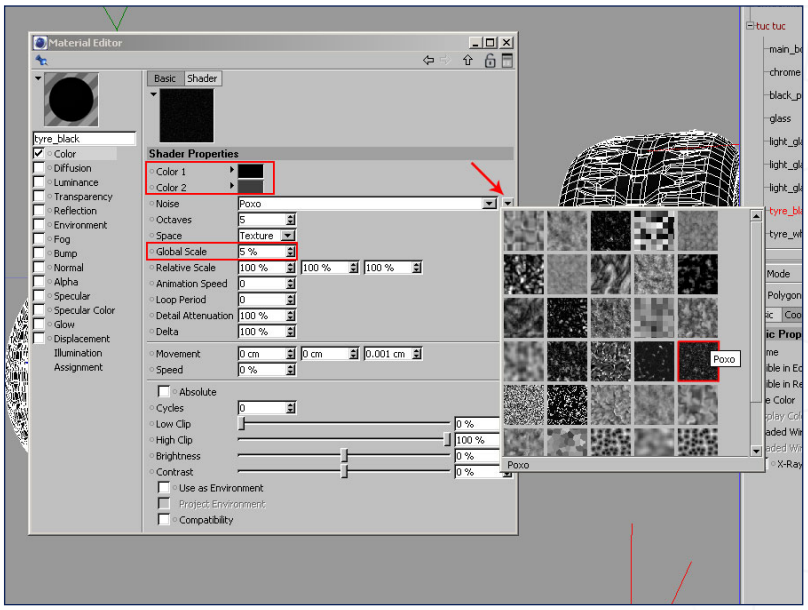
20. Let's work now on the tyre materials. Starting with the Black_tyre material, open the editor and in the Colour channel load the Noise effect. Decrease the Brightness to 10%, as seen in Fig.20.

Fig 20



21. Go in to the Shader properties by clicking on the Noise tab. For the type of noise choose the Poxo and then change its colours: Colour 1 = black; Colour 2 = dark grey. Change the Global Scale to 5%, as shown in Fig.21.

Fig 21



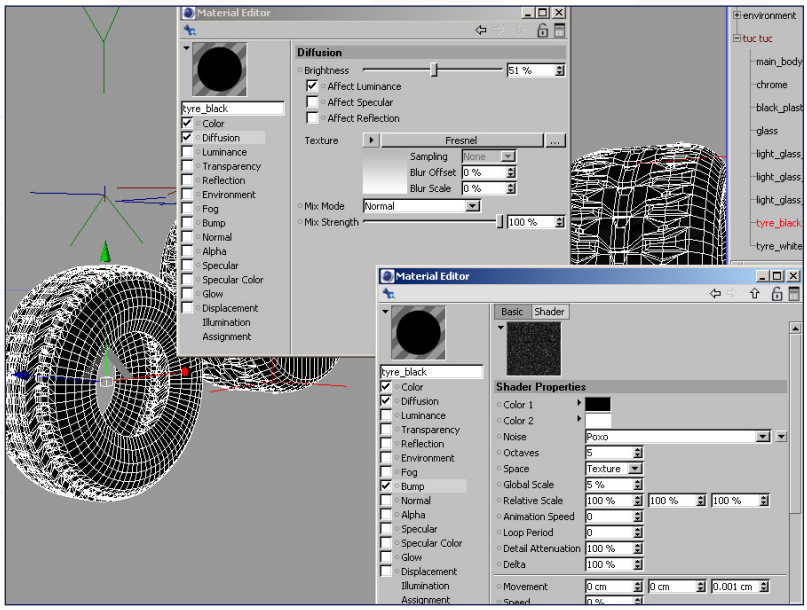


Fig 22

22. Turn on the Diffusion channel and load the Fresnel effect. Set the gradient from white to light grey, then decrease the Brightness to 50%. Now activate the Bump channel and here load the Noise effect. As we did before, load the Poxo type and change the colours:
Colour 1 = black; Colour 2 = white. Set the Global Scale to 5% as seen in Fig.22. Change the Strength of Bump to 12%.

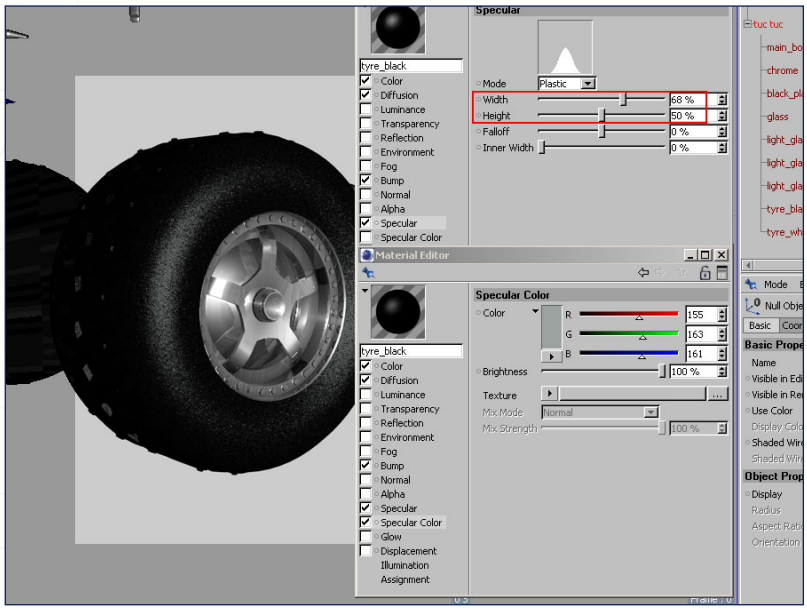


Fig 23

23. In the Specular channel modify the parameters, as shown in Fig.23. Then turn on the Specular Colour channel and change the colour, as seen in the image. On the left you can see a render region that shows us the result.

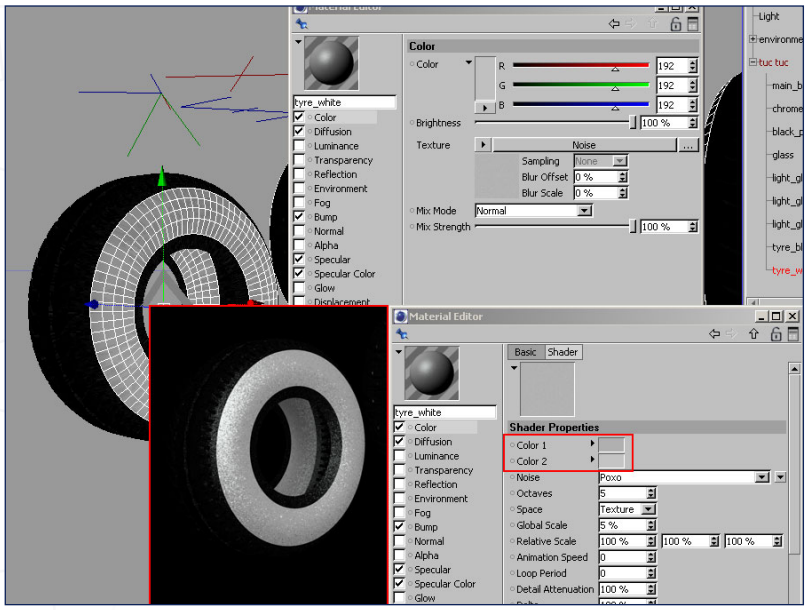


Fig 24

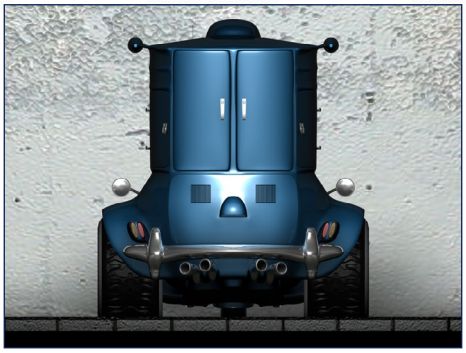
24. The Tyre_white material is equal to Tyre_black material, you just have to change the base colour and the colours of noise, as seen in Fig.24. A render region (highlighted in red) shows us how it looks.

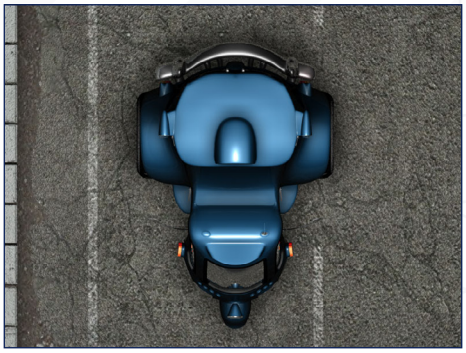
This concludes this part of the tutorial dedicated to Materials and Shaders. Next month we will continue working on the lighting setup and the rig.

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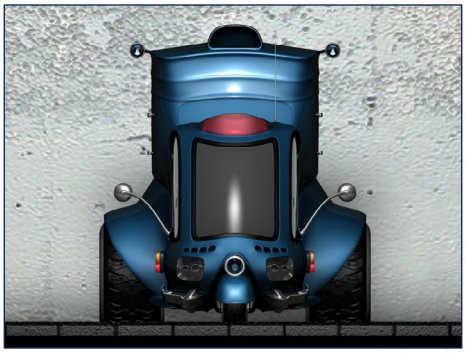
Originally Designed & Modelled by:
RICHARD TILBURY

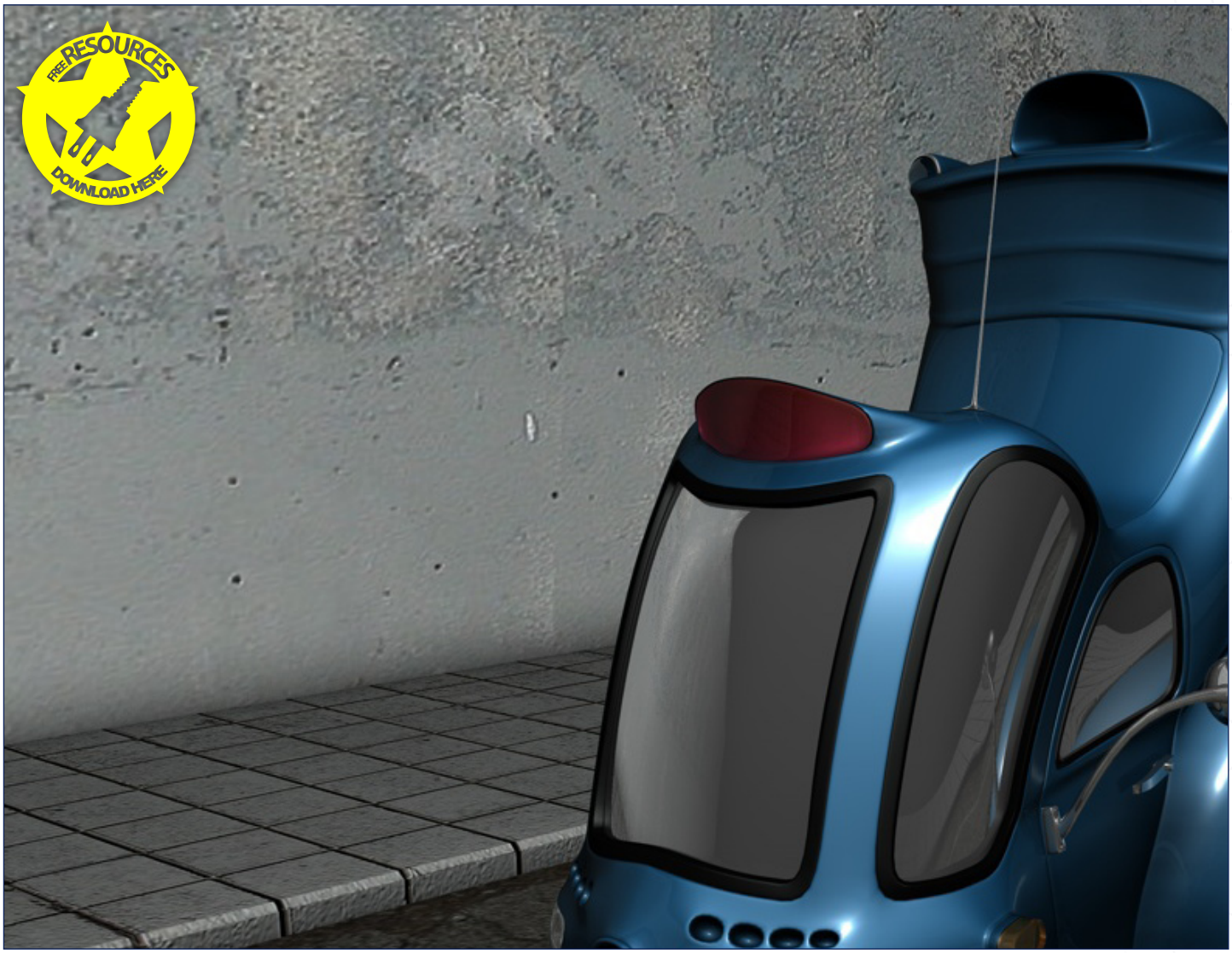
Tutorial by:
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niki@pikoandniki.com













Tuc-Tuc

lightwave

Is our new precise, step-by-step tutorial which will begin with a vehicle model and cover the principals of applying shaders, placing it in a simple scene and following with a two-part section on both lighting and rendering. The tutorial will begin by creating and applying materials for the various parts of the car, such as glass, chrome and tyres, as well as texturing some simple geometry that will make up a scene. It will then move onto lighting where the focus will be on setting up a lighting rig and the various parameters connected to this. Finally the series will culminate with a section on rendering, where the aim will be to finish with a polished image. The schedule is as follows:

Issue 017 January 2007
Applying Materials & Shaders Part 1

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Applying Materials & Shaders Part 2

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Lighting Setup & Rig (with HDRI) Part 1

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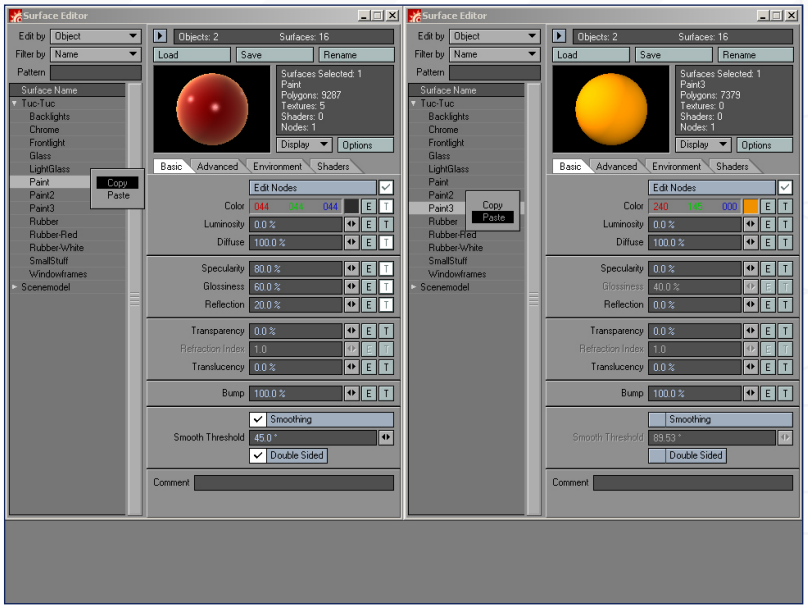
Issue 021 May 2007
Rendering Part 1

Issue 022 June 2007
Rendering Part 2

Enjoy ...

Assigning Materials & Shaders - Part 2

Fig 01



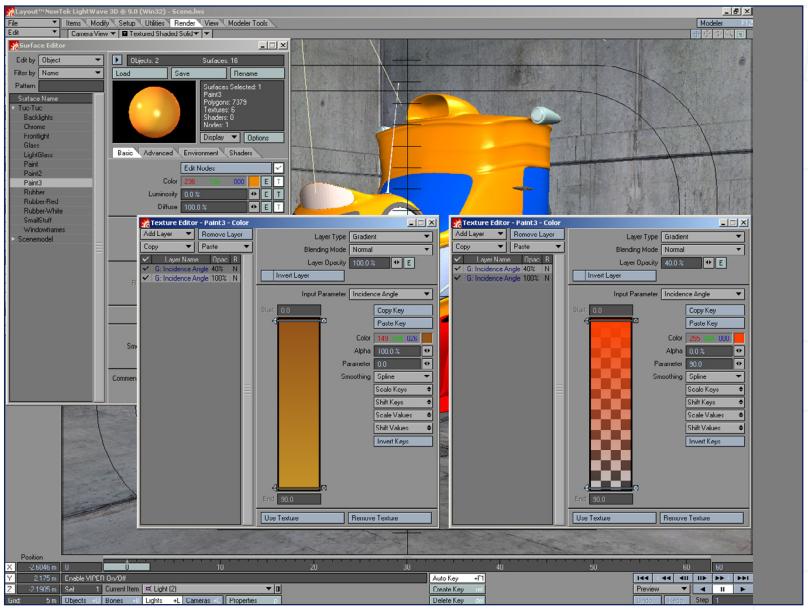
1. In part 1, we have covered the tasks of assigning the materials to the 3D model and have created the first “paint” material. In part 2 we are going to finish all the materials of our vehicle. We’ll start with the different coloured car paint. Copy the material “Paint” and right-click on the surface name and click “copy”. Now select the material “Paint3” - this is the upper part of the car - and use a right mouse-click, and “paste”. Now we have an exact copy of our paint material that we will modify next (Fig.01 & 02).

Fig 02



3. Go to the colour channel of the “Paint3” material. We are now changing the base colour of the paint, by changing the first gradient. “Paint” uses a red colour spectrum. For this paint we change that to orange. So, change the parameter “0.0” of the gradient to a darker orange. At 90° (parameter 90.0) you choose a brighter orange. Now choose the second layer of the colour channel. Right now this is yellow. Red is a good choice for this, as it makes a better transition between “Paint” and “Paint3”. Change the colour at both parameters and leave all the other settings as they are (Fig.03). If you checked the last image closely you may have seen that I changed the colour of the material in the basic setting tab. The gradient of the colour channel overwrites this setting, but the OpenGL preview usually does not show the gradient colour. So, if you want to have feedback on the colour in OpenGL, choose a similar colour to what you have in the gradient.

Fig 03



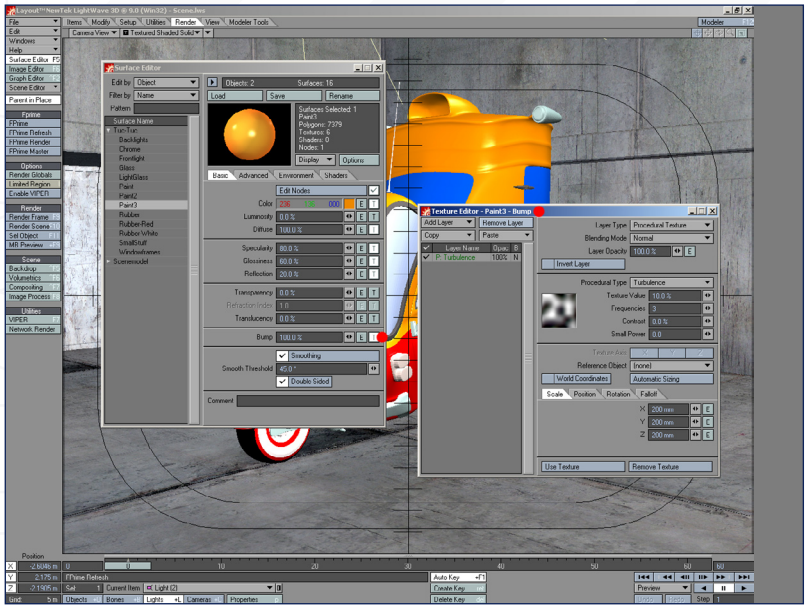


Fig 04

4. For the upper part of the paint we are going to add an irregular look. Go to the “Bump” channel and add a procedural map. “Procedural Type” is set to “Turbulence”. Change “Texture Value” to 10%. “Contrast” and “Small Power” is set to “0”. Scale this to 200 mm on the X, Y, Z axes. This makes the surface appear to have small dents in it. The effect is very subtle, as the procedural map does not have much detail. You might notice that reflections are a bit distorted this way (Fig.04).



Fig 05

5. Make a test render to see what we have (Fig.05).

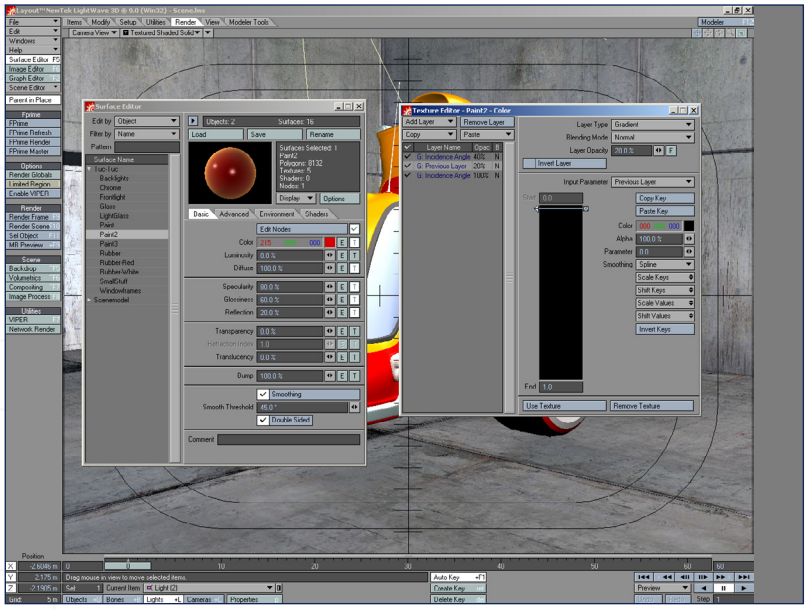


Fig 06

6. Copy the “Paint” material, and paste it on to “Paint2”. This is the paint for the smaller parts of the car, like the doors and hatches. Since we already have a quite a colourful car, we are not doing extreme colour variation with this one. In fact, it already looks quite fitting with the same red colour as in “Paint”. So, all we do is make the paint a little darker. I simply do this by adding a new gradient to the colour channel. It has to be between the 2 gradients that we already have. Change the colour of this new gradient to black. We want the colour to be just a bit darker, so we change “Layer Opacity” to 20% (Fig.06).

7. I tend to make a test render after each new material to check that everything is fitting (Fig.07).

Fig 07



8. The windows are the next big part we are going to change. We don't have an interior in the car, so the inside should not be visible. The glass we are creating won't be the most realistic glass. The important thing is that it fits the object. So, select the "Glass" material. In the "Basic" tab change the following values: Diffuse: 20%; Specularity: 100%; Glossiness: 45%; Reflection: 50%; Transparency: 25%; Refraction Index: 1.01; Translucency: 50%. Also check "Smoothing" and "Double Sided".
Next, go to the "Advanced" Tab. Here we change "Additive Transparency" to 15%. This makes the transparency appear brighter and more reflective. "Diffuse Sharpness" is set to 20%. In the "Environment" tab we change the "Reflection" and "Refraction" options to "Ray Tracing + Backdrop". "Reflection Blurring" is set to 10% and "Refraction Blurring" is set to 20%. Now you will see why we choose a "Refraction Index" of 1.01 in the "Basic" tab. We just use the refraction to blur everything that is inside the car. Of course ,you can set a higher setting to make a more distorted look if you like (Fig.08).

Fig 08

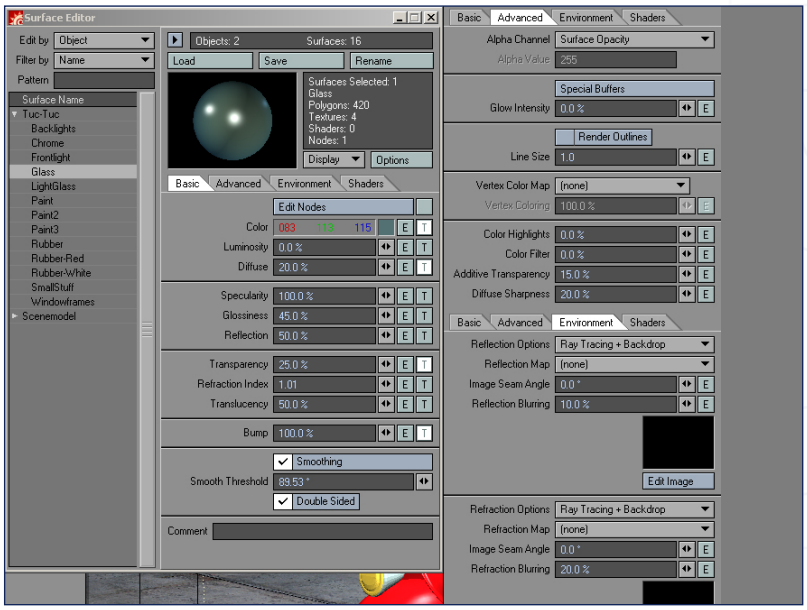
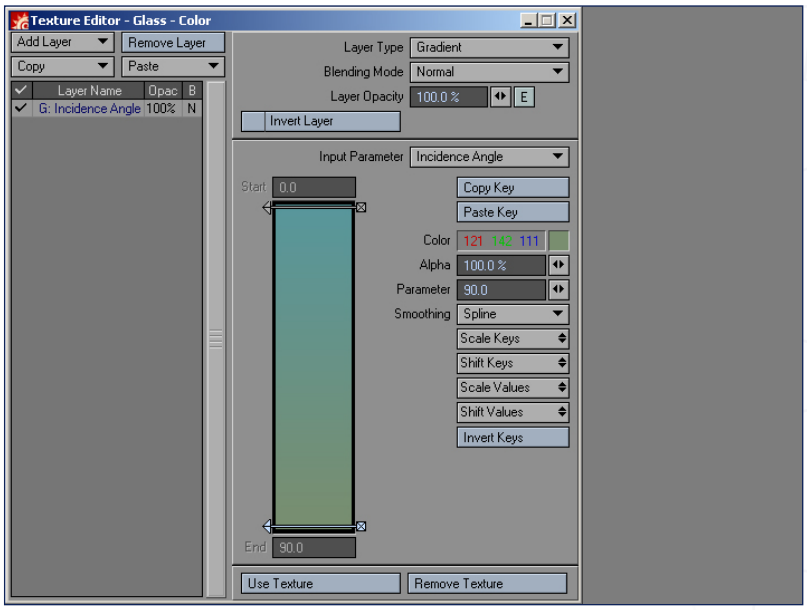


Fig 09



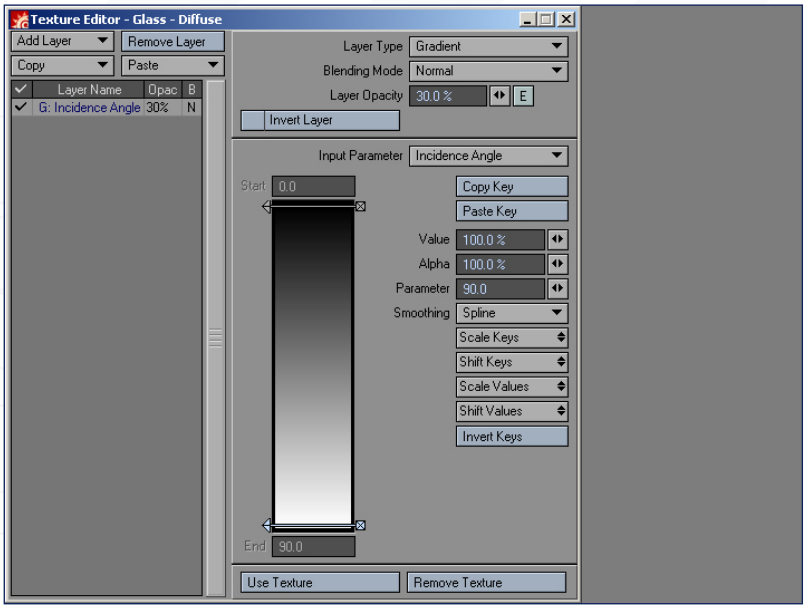


Fig 10

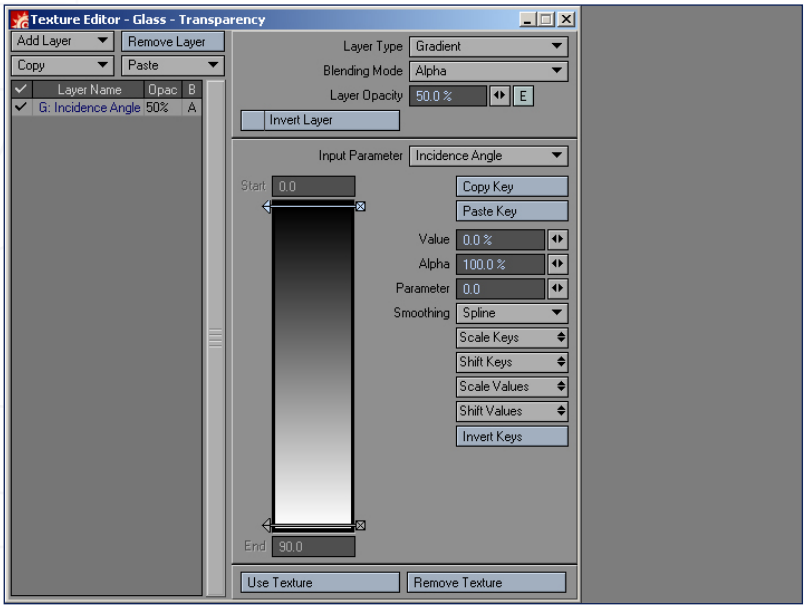


Fig 11

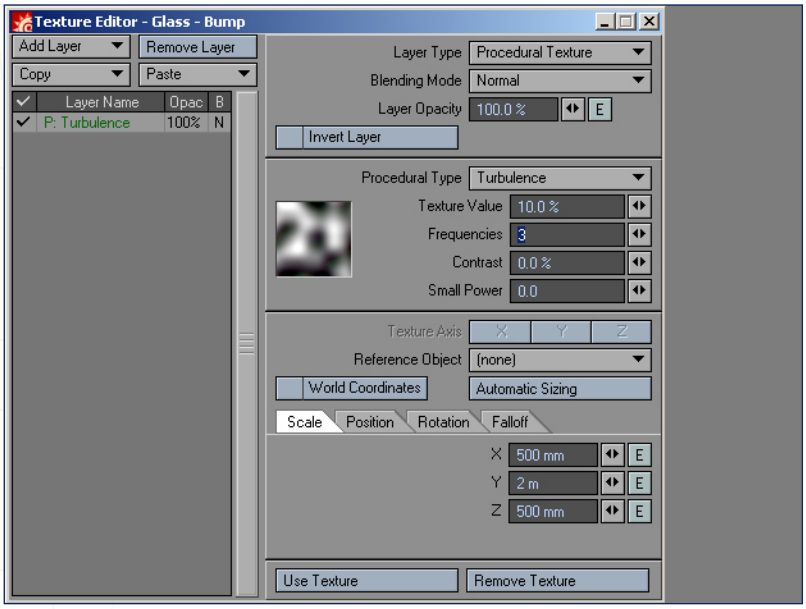


Fig 12

09-13. Go to the colour channel. We add a blue to blue-green gradient that has its “Input Parameter” set to “Incidence Angle”. In the diffuse channel we also have an “Incidence Angle” gradient. This goes from black to white, with a “Layer Opacity” of 30%. Copy this layer. On the transparency channel, paste the gradient that we just had. Change the “Blending Mode” to “Alpha” and set “Layer Opacity” to 50%. This makes the window a little less transparent on all polygons that are facing the viewer. The bump channel again serves to make the surface look a bit distorted - less like glass but more like plastic. The settings are similar to the ones used on the paint, but the scale is different. Use “500 mm” for X and Z axes, and use “2 m” for the Y axis (Fig.09-12).

13. You need to check “Ray Trace Refractions” in the “Render Globals” in order to see the blur effect of the glass in the render. The render might take much longer with this setting, so you might want to turn it off again for other test renders (Fig.13).

Fig 13



14-15. Copy the “Glass” material and paste it with the “LightGlass” material selected. We change the “Glossiness” to 70% as we want to be able to see through the glass a little more this time. Change the “Transparency” to 50%. Also change the “Refraction Index” back to 1.00 - this setting turns off refractions. Change the gradient from the colour channel to something more brown-ish (Fig.14 & 15).

Fig 14

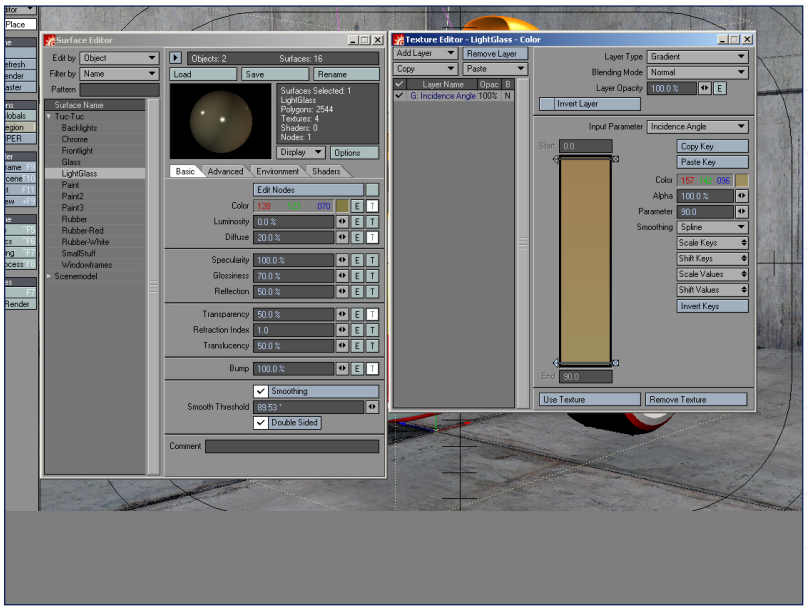


Fig 15



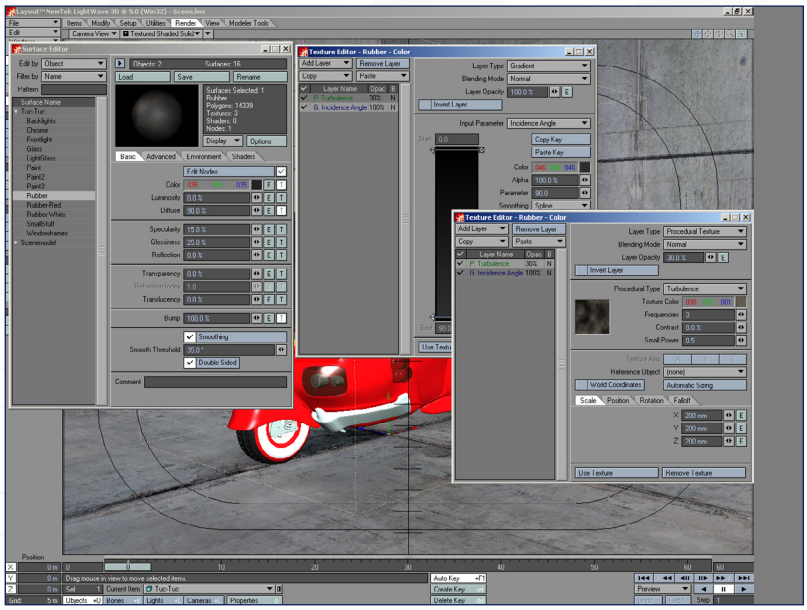


Fig 16

16. The tyres are the next very different material we are going to create. Select the surface name “Rubber”. Diffuse is set to 90%; Specularity to 15%; Glossiness to 25%. Turn on Smoothing, and set the threshold to 35.0°. In the colour channel, we set out the gradient, as usual. Set to “Incidence Angle” and colour range from darker grey to lighter grey. We also add a procedural texture. “Layer Opacity” is 30%, and the “Layer Type” is set to “Turbulence”. Scale this to 200 mm. Choose a “dirty colour” - something light grey or brown. This texture makes the colour a bit more irregular, as if it is a bit dusty. Again, this is just a very subtle effect (Fig.16). The diffuse channel uses the same gradient, as for the glass material (See Fig.10 for this). By now you know that this is a very good setting for almost every material, as it is simple for letting the object appear more plastic.

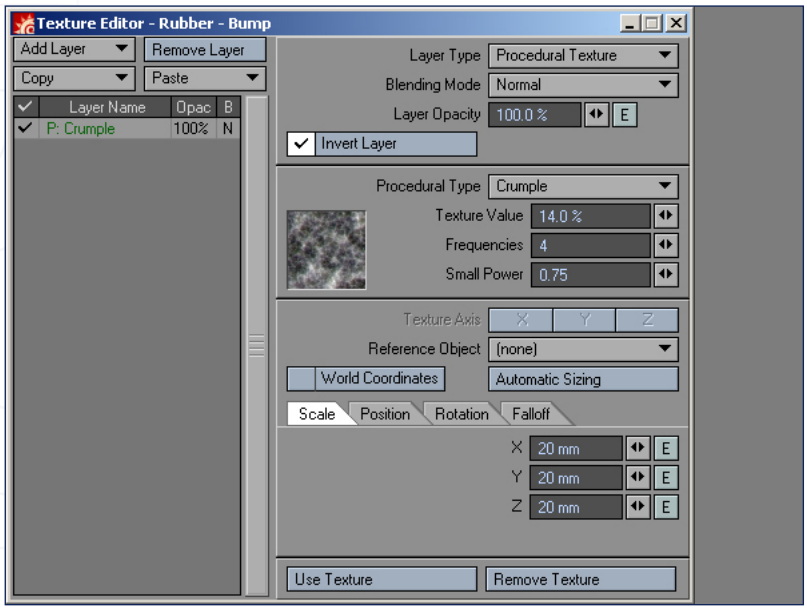


Fig 17

17. The Bump channel is more important. Imagine the look of very old rubber; it becomes crumbly, with many little cracks. Since we want new rubber, we use this crumbly look very gently. Add a “Procedural Texture”. The “Procedural Type” is - you’ve already guessed it - “Crumple”. Check “Invert Layer” so that it appears smooth with cracks, not edgy with smooth dents. The “Texture Value” should be very low - I go for 14%. And then we scale it to 20 mm. No need to touch any other options (Fig.17).

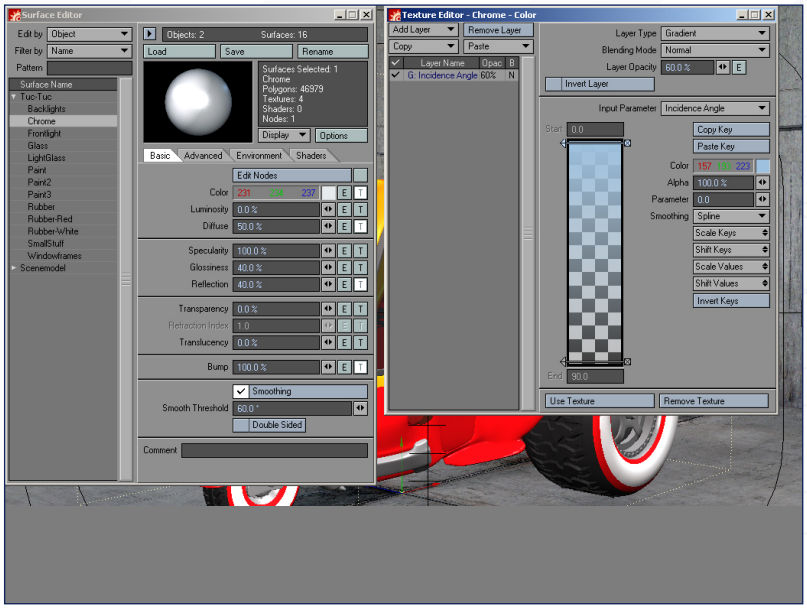


Fig 18

18. Copy the “Rubber” Material, and paste it on “Rubber Red” and “Rubber White”. For the red rubber, change the gradient from bright red (at parameter “0.0”) to darker red (at “90.0”). And, for the white rubber, you can change it to go from white (“0.0”) to bright grey (“90.0”). You can adjust “Diffuse” to 100% if the material seems a bit dark. Make a test render (Fig.18). On the white material you might see a strange look - like the smoothing angle is set wrong. This can happen when you turn on “Double Sided”. So you should uncheck this for all materials that you don’t really need it for. The tyres are closed objects, so it is not necessary for them to be double-sided materials. Chrome is a

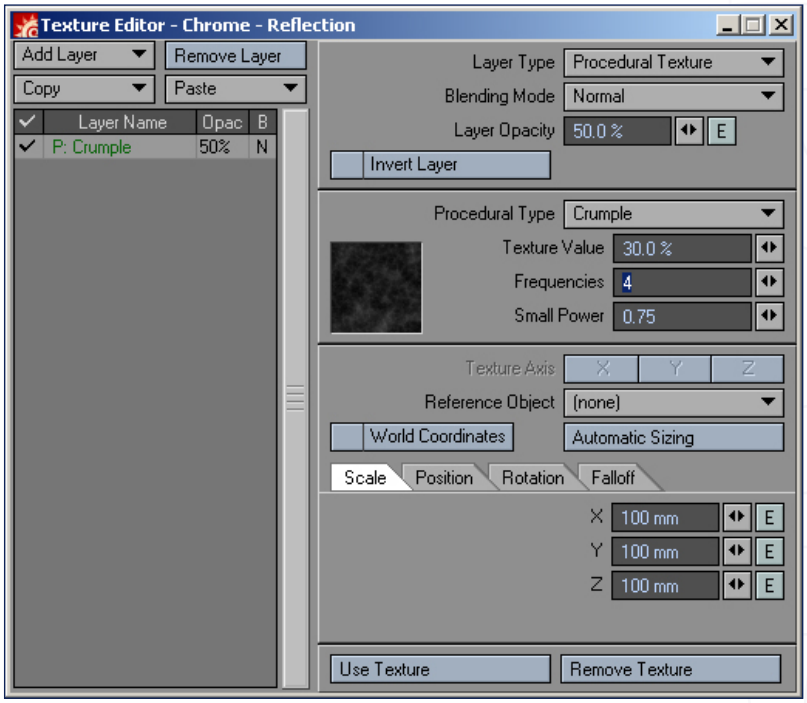
material I try to avoid, because this material is very “over the top”. Imagine a beautiful designed classic car. Chrome on the bumpers will look authentic, but whole car in chrome would just be “too much”. This is because this material is so reflective. Be careful with this material and try to use it only were necessary. You might ruin a realistic look just by overusing it.

Fig 19



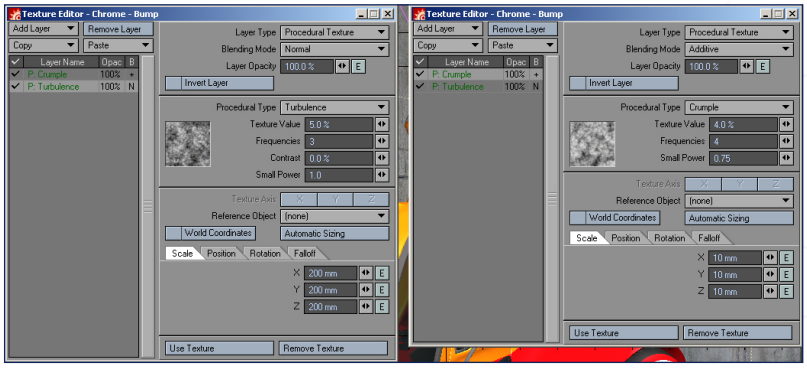
19. Select the “Chrome” material. A very good alternative to chrome would be polished black, and would fit the car very well. I go for chrome, as it is a bit more challenging to setup. This time, we choose the colour directly in the “Basic” tab. Go for a very bright grey, almost white. Set the Diffuse to 50%; Specularity to 100%; Glossiness to 40%; Reflection to 40%; Enable Smoothing and use an angle of 60.0°. Go to the tab “Advanced” and change the value “Color Highlights” to 100%, and the “Diffuse Sharpness” to 40%. In the “Environment” tab, change “Reflection Options” to “Ray Tracing + Spherical Map”, and set “Reflection Blurring” to 20%. Go to the colour channel, where we will add a gradient, set to “Incidence Angle”. The “Layer Opacity” should be 60%. We choose a light blue colour, and add a second parameter, at 90.0, with an alpha value of 0.0% (Fig.19). The diffuse channel is again the same as in the other materials (again, refer to Fig.10). The only difference is that we change the “Layer Opacity” to 50%.

Fig 20



20. On the reflection channel, add a “Procedural Texture”. The type is “Crumple” again and the “Texture Value” is 30%. The texture is scaled to 100 mm. Set Layer Opacity to 50%, which makes the reflection a bit irregular (Fig.20).

Fig 21



21. Add 2 layers of procedural textures in the “Bump” channel. Both texture values are very low (around 5%). One of the textures has a scale of 200 mm. The other one has a scale of 10mm. It is important, that you set the layer that is on top to Blending Mode “Additive”, otherwise it overwrites the layer below (Fig.21).



Fig 22

22. Copy the “Chrome” material, and paste it on the “SmallStuff” material. Just make the colour full white and change the Smoothing angle to something lower, e.g. 25.0°. It is now time for another test render (Fig.22).

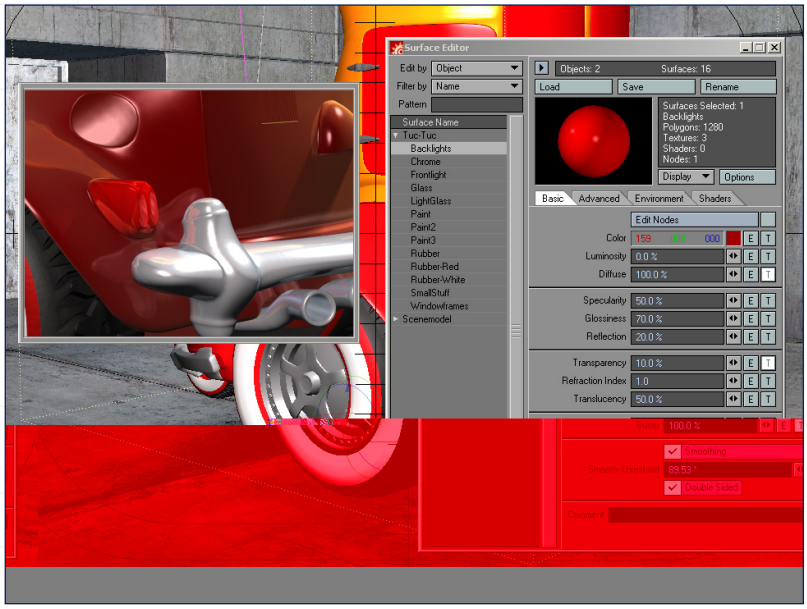


Fig 23

23. We have 2 materials left - the “Backlight” and the “Frontlight”. For the “Backlight” we are going to start from the material “LightGlass”. So copy this and paste it onto the “Backlight”. Set the colour to dark red in the Basic tab and remove the gradient from the colour channel. Set Diffuse to 100%; Specularity to 50%; Glossiness to 70%; Reflection to 20%; Transparency to 10%. These settings should give us a nice, plastic look (Fig.23). It’s always a good idea to copy and paste materials with similar attributes. This not only saves a lot of time, but it also helps to keep a certain look for the complete object.

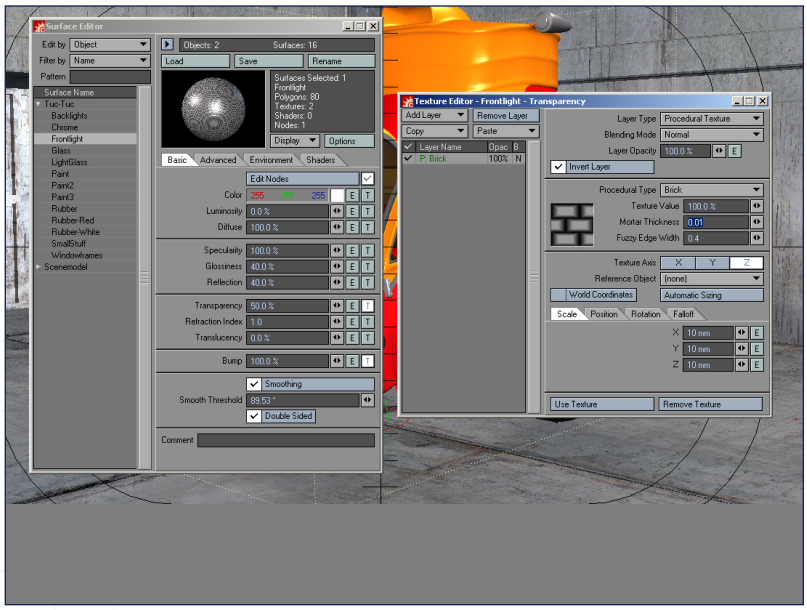
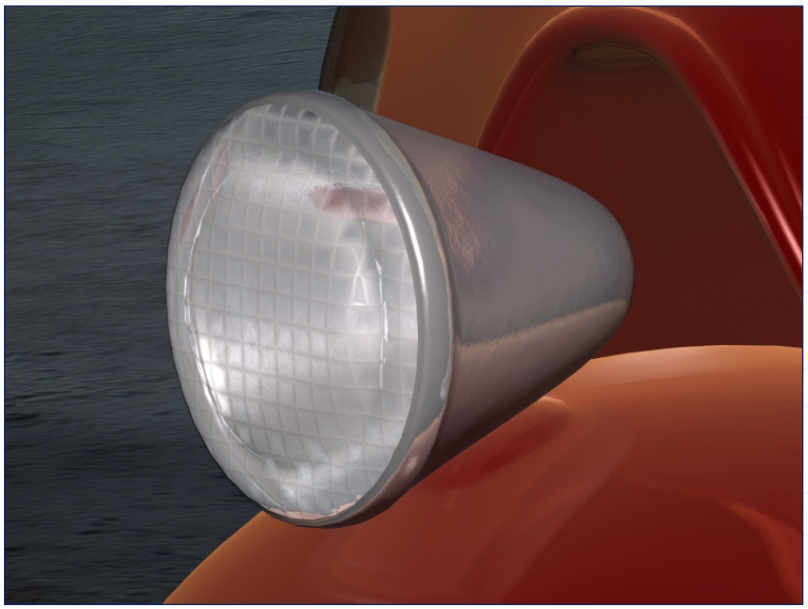


Fig 24

24. For the “FrontLight” material, choose the following settings. Full white colour: Specularity at 100%; Glossiness and Reflection at 40%; Transparency at 50%; and check both “Smoothing” and “Double Sided”. In order for this to work, you need to check “Double Sided” on the “Chrome” material as well, because we will be able to see the inside of the lamp. For the transparency, add a “brick” procedural texture. Scale it to 10 mm. The Texture Axis will be Z - this is dependent on how you aligned the car. It needs to be mapped from the front. The Texture Value should be 100%. “Mortar Thickness” = 0.01 and the “Fussy Edge Width” = 0.4. Make sure you check “Invert Layer”. Copy this layer (Fig.24).

25. Paste this layer into the Bump channel. Change the texture value to 20% and uncheck “Invert Layer”. The brick texture makes the small light splitting elements of a headlight. In combination with the chrome, that’s inside the lamp, this looks quite nice (Fig.25).

Fig 25



26. Now have a look at your completed car. Are there parts you like to change? Does it look like it is a whole object? (Fig.26).

Fig 26



27. There are some flaws in it - but this is not a big deal. The process is just fine-tuning, and it is something that makes the most fun and is just the simple use of the techniques you have already used to setup the materials before. Experiment! You might also consider that we have not changed the “Windowframe” material. Do this now! Make the colour almost black, add a Specularity and Glossiness value of 30%, and check “Smoothing”. That’s about it. As an alternative, you can copy and paste the “rubber” material. The upper lamps on the back are entirely made of chrome. Go to modeller, select the front part of these lamps, and assign the material of the back-light. The chrome parts look out of place. They do not seem to belong to the car. This can be fixed by doing 2 things: change the window colour and try to match the look of the chrome. This way you have bigger groups of the car. There is not much chrome on the upper part of the car. The window makes the transition in the look easier. The second thing you can do is to add another “Incidence Angle” gradient to the “Chrome”. Choose the colour that is the most prominent in the car - a colour between orange and red, and make the 90.0° parameter transparent. Change the layer opacity to “20%”, so that you only have a very subtle red shine. Now these chrome parts do not stand out as much as before. It just looks like the chrome is reflecting more of the red colour. The colour of the “LightGlass” material is a bit too yellow. Change the “0.0” parameter of the colour gradient to grey instead of beige. Make another test render (Fig.27). Now this is much better, I think. Keep in mind that when you change the scene or scene settings, the

Fig 27



look of some materials might be a bit different. Then you have to fine-tune some parameters, like “Diffuse” or “Reflection”. If you have any questions about applying materials and shaders in LightWave, feel free to contact me via my homepage. I hope you will also follow with next month’s instalment...





TUC-TUC

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Tutorial by:
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For more from this artist visit:
dOUGh-CGI
www.dough-cgi.de









Tuc-Tuc

Maya

Is our new precise, step-by-step tutorial which will begin with a vehicle model and cover the principals of applying shaders, placing it in a simple scene and following with a two-part section on both lighting and rendering. The tutorial will begin by creating and applying materials for the various parts of the car, such as glass, chrome and tyres, as well as texturing some simple geometry that will make up a scene. It will then move onto lighting where the focus will be on setting up a lighting rig and the various parameters connected to this. Finally the series will culminate with a section on rendering, where the aim will be to finish with a polished image. The schedule is as follows:

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Issue 021 May 2007
Rendering Part 1

Issue 022 June 2007
Rendering Part 2

Enjoy ...

Assigning Materials & Shaders - Part 2

Welcome to our new tutorial. In this new set of lessons we're going to apply shaders and materials on a 3D model, set-up lighting, and rig using HDRI (High Dynamic Range Images) and rendering.

1. In the previous tutorial we talked about GUI (General User Interface). Also we finished applying colour to the chassis. Regarding the GUI, I have presented the Multilister Window, Shading Group (SG), changed the name of SG, made Quick Selection Sets (QSS), and applied SG to these. We also discussed about the material settings and what makes a Blinn, Lambert or Phong look like rubber, plastic, glass, steel, etc. This month, I will presume knowledge of the GUI and the other elements that I've presented earlier, and we're going to talk about how to apply shaders and materials to the remaining parts, which are quite a few, as seen in Fig.01 coloured in grey. So we'd better start work...

2. Since we must have some sort of order in our work I'm going to start applying shaders and materials from the front to the rear. We'll start with the front wheel which is made out of rubber, then the front wheel shield, the front lamp, front breaks, and then some screws, as shown in Fig.02. For the rubber I need a material which I would like to show a little bit of glossiness, but not very much, and also a little bit of reflection. To obtain these I push the Eccentricity up to 1, the SRO to 0.2 and the Reflectivity to 0.050. This way the light diffuses smoothly over the entire surface, showing just a little glossiness. If the glossiness is too big then it will look like plastic and I do not want to have a wheel made of plastic.

3. Now, in order to add the white colours on my front wheel, as shown in Fig.03, I could choose two ways: use a ramp texture in SG's colour box together with a cylindrical projection on the

Fig 01



Fig 02

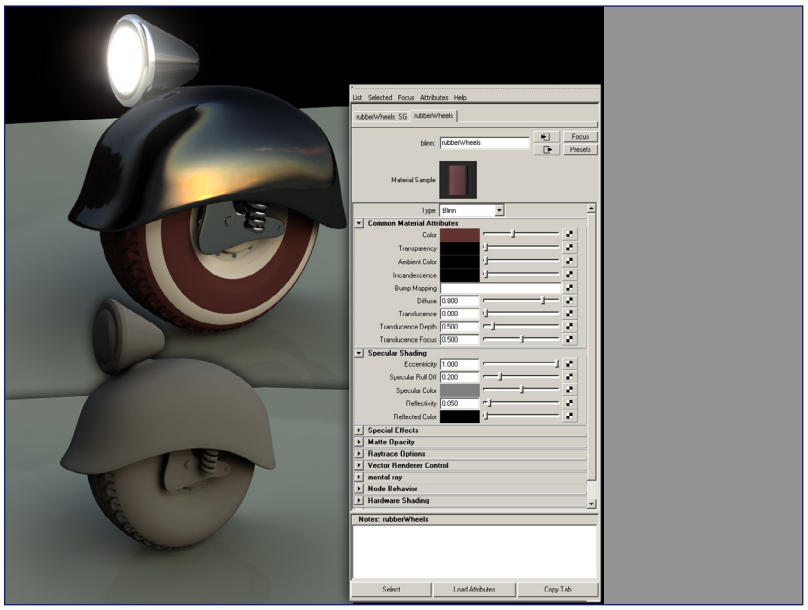
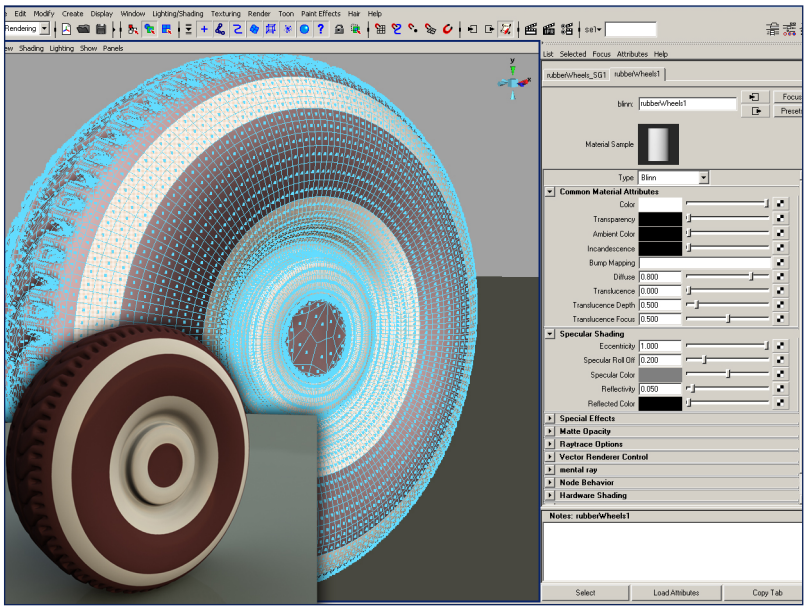


Fig 03



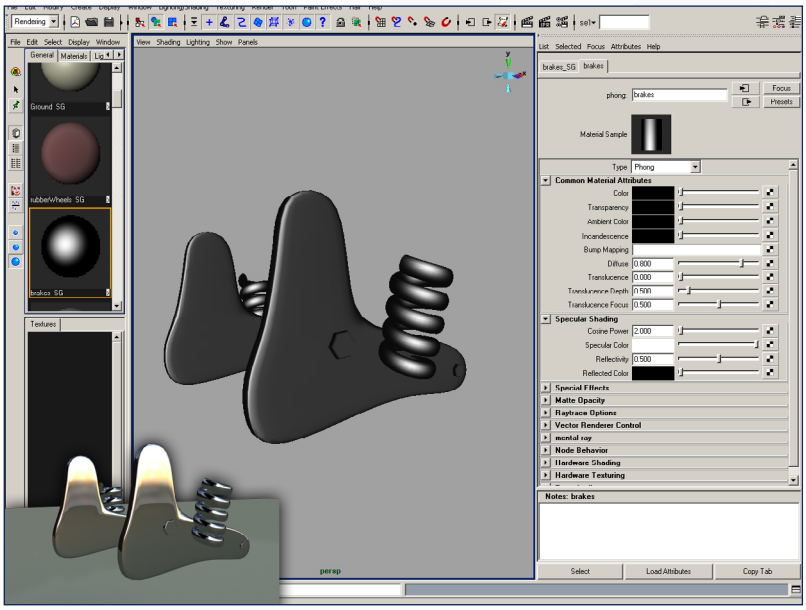


Fig 04

surface, or use the QSS and apply my SG to these selections. I've presented here the second way, since it is faster, but you can choose the first way if you'd like. The applied projection techniques, including the cylindrical projection, were largely presented on the "Swordmaster" tutorial last year. Using Quick Selection Set (QSS) is very fast and simple. Just select the faces (as shown in the last month's tutorial) and apply the white SG to the selected faces.

4. For the brakes and for the spring shock absorber I use a chrome like material made out of a Phong SG. Very few settings need to be adjusted for this material (See Fig.04). For the front wheel shield I use the same material as I have used for the rear wheel shields (shown in the previous tutorial from the last month). Just assign the SG to the wheel shield.

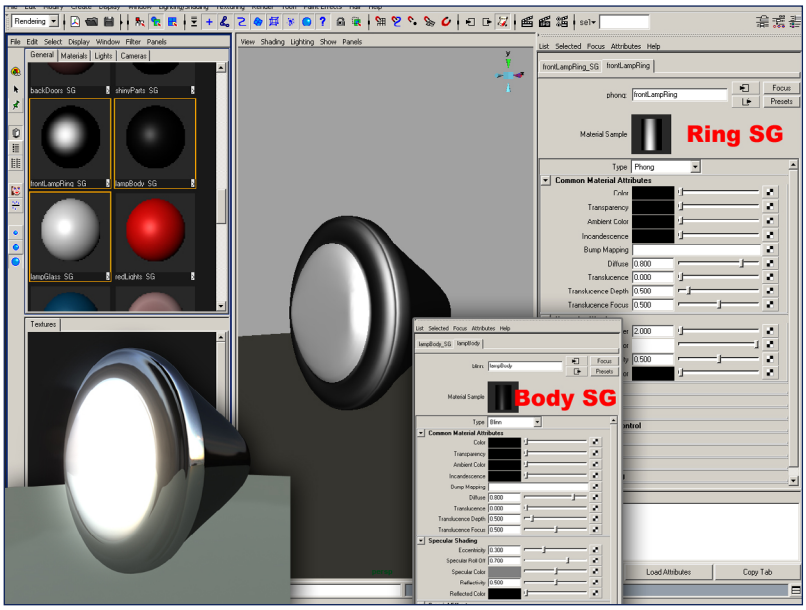


Fig 05

5. Now, because the front lamp is a single 3D object, and I want to assign 3 different materials, I have to use QSS. The SGs used are highlighted in yellow in Fig.05. So I make one selection for the glass, another one for the chrome ring, and the last one for the lamp's body. The material for the chrome ring is "frontLampRing SG" and for the lamp's body it is "lampBody".

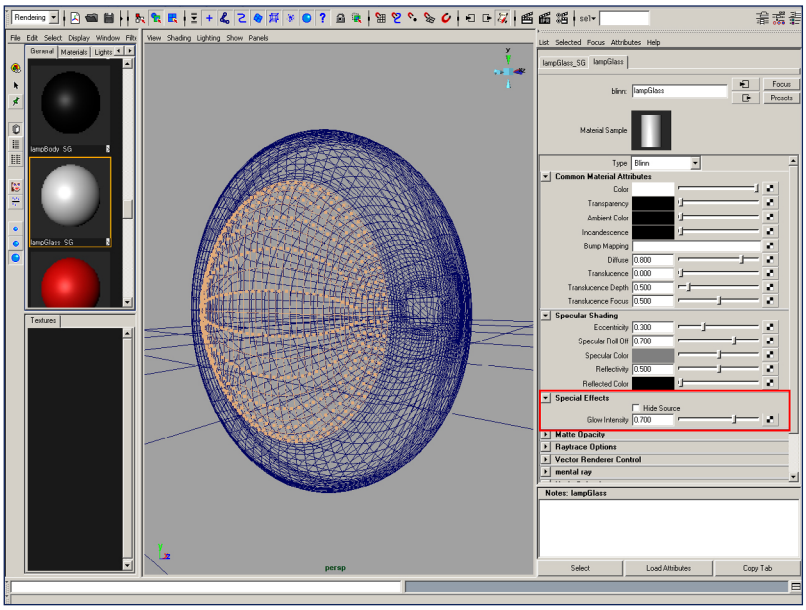
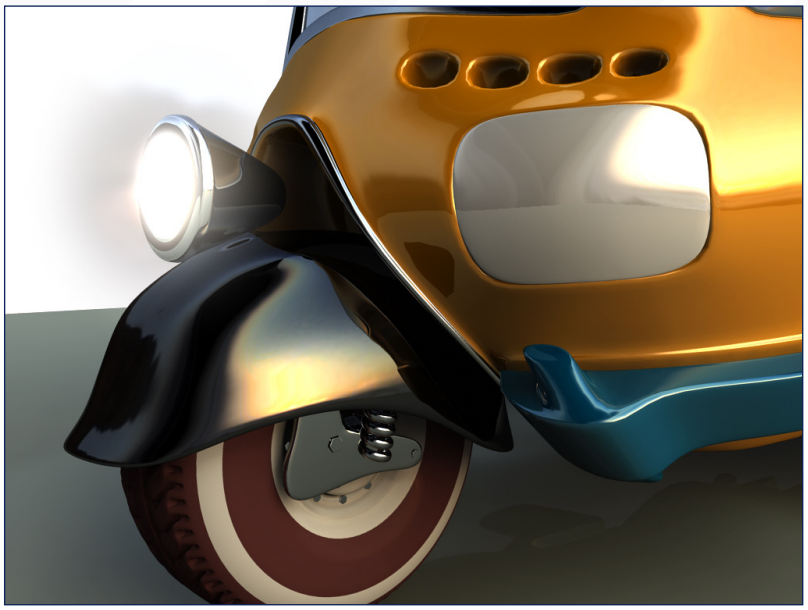


Fig 06

6. I want to add a special effect to the glass in order to simulate that the lights are turned on. For this I apply "lampGlass" SG to my glass selection, as shown in Fig.06. Now, to add the glow, open the "Special Effects" tab from the material attribute and change the value from 0.000 to 0.700. This glow effect must be used with caution because the value set for one glow will remain the same for the whole bunch of materials that are having the glow effect turned on. Of course, there are few methods to assign different types of glow to different objects, but that's not our issue right now. For what we need now this is very good. So, after the glow is set, the lamp looks like it's emitting light - but that's just an effect. Nevertheless we'll add lights on in our next tutorials. Right now I am just presenting this option. (Step 5 and Step 6 are the same for

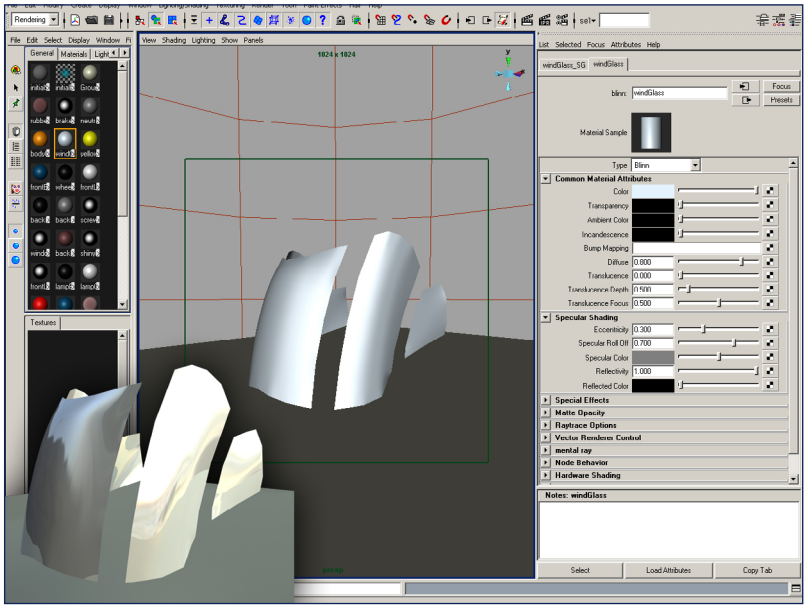
the upper lamps attached to the chassis.)

Fig 07



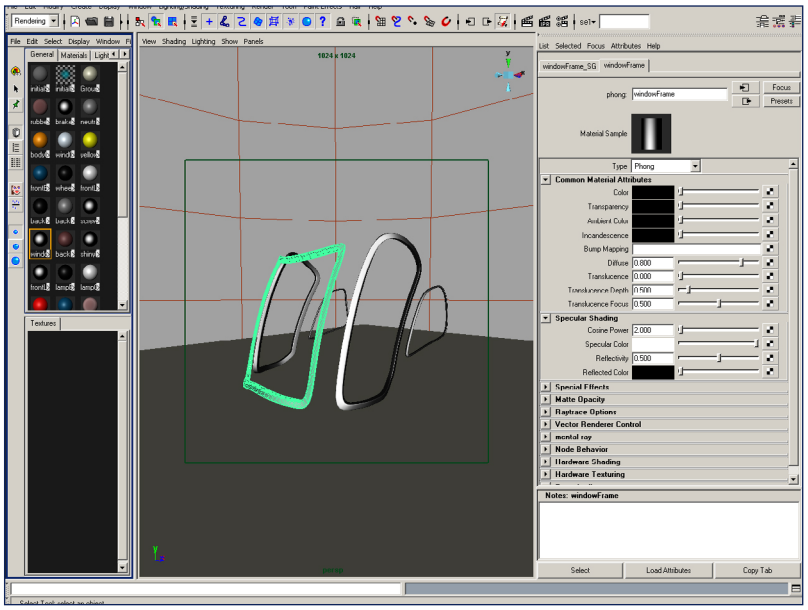
7. We're done with the front part of our car. We have nice Italian rubber with white stripes on the wheel, chrome rings and lines, shiny brakes and screws and nice black wheel shields with smooth reflections on it. It would be a good idea to try as much as possible to obtain good contrast between the different parts of one object, or even between the objects. This way all the hard work made in the modelling stage will be visible. The curvature is visible too. Even if there's an animated object, and due to this there is no time to see all the details, the eye is trained by nature to "feel" the richness of the model without being aware of what it sees. These tiny details make a big difference between a good image and a not-so-good one.

Fig 08



8. For the windscreens, I have a very clear specification to follow: they must not allow you to see anything from inside the car. Or, in 3D, what's not visible doesn't exist. This means that someone, i.e. the art director, concept artist, etc., has taken a decision which I have to follow. The only way I can make an opaque object to look through, like glass, is to transform it into a mirror. For this I will use a very reflective surface, as shown in Fig.08.

Fig 09



9. The frames from around the windows are made out of a chrome-like material (Fig.09) - a very simple material, as we've used before. Nothing too fancy here, just simple adjustments to the few attributes.

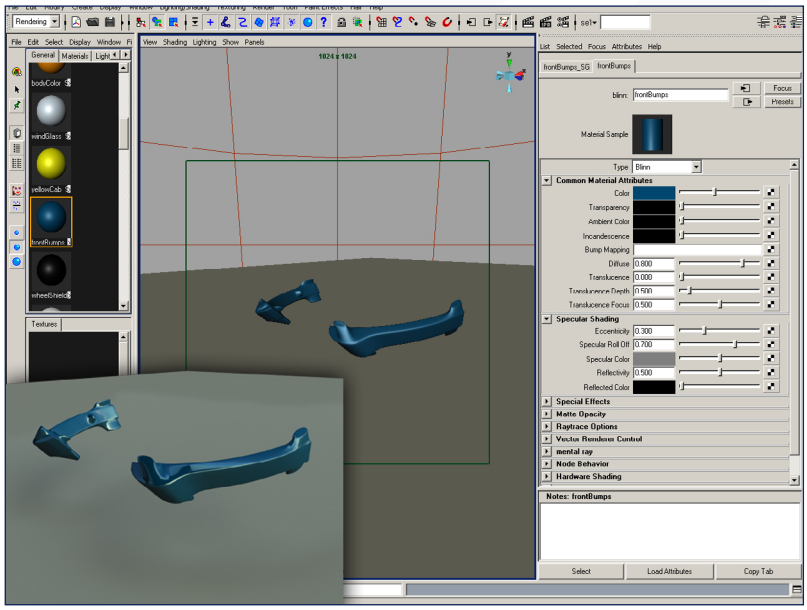


Fig 10

10. I want the front and back bumpers to be blue, because the blue colour makes a nice contrast with the orange chassis. I could have made them black also, but since the car looks very cartoon-ish this blue might help to emphasize some of these cartoon-like aspects made during the modelling process (Fig.10).

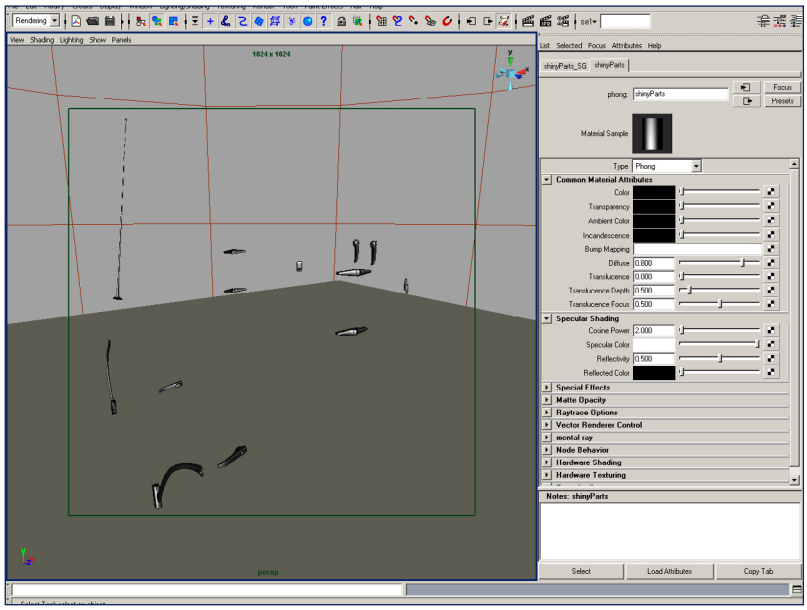


Fig 11

11. Now for all the rest of the shiny parts, like aerial antenna, side and back-door handles, hinges, and for side-mirror holder, I use one, single chrome material. Select all of them, create the material or duplicate another one already existing in the multilister, and apply the material. This way we're saving a lot of space in the multilister and also a lot of time (Fig.11).

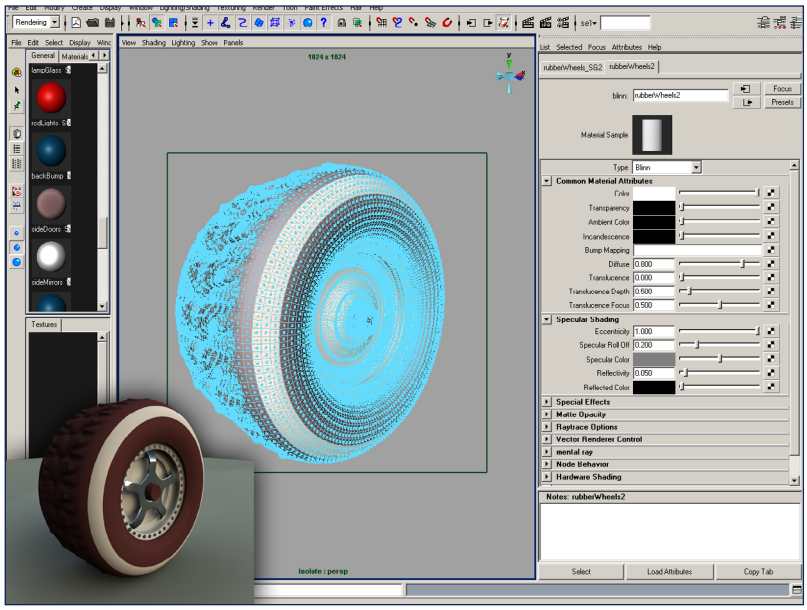
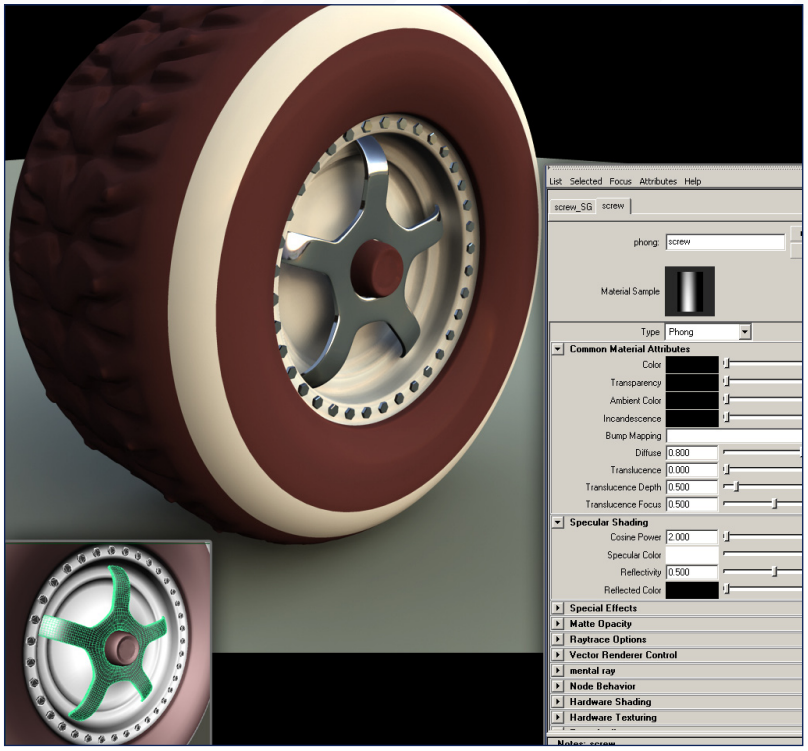


Fig 12

12. The side wheel is made from exactly the same material as the front wheel. First of all, I apply the main colour, then, using the quick selection tool, I make two selections: one to the middle part of the wheel and the other one near to the outer border of the wheel. Then, with all the faces selected, apply the white material. Don't forget to use the "Convert selection to faces" tool for transforming an edge selection to faces selection (Fig.12).

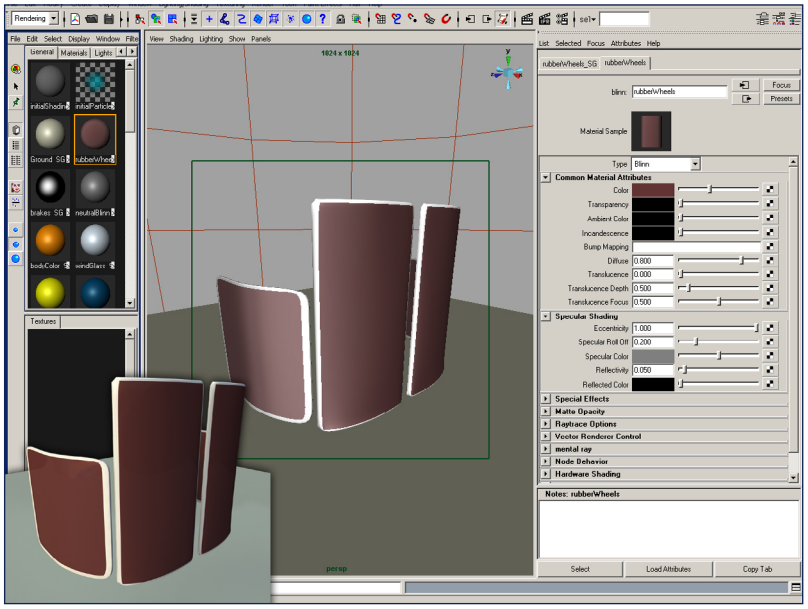
13. For the shiny parts of the wheel, i.e. screws and rims, I duplicate the material used for the brakes to the front wheel. I change its name and then I apply this new created material to the rims and screws (Fig.13).

Fig 13



14. The last thing I have to do in order to finish the car is to apply shaders and materials to the remaining parts: the doors attached to the chassis. I would really like them to be made from the same material as the wheels. The reason I'm doing this is because I really like the solution found for the wheels and I would like to apply this onto something else - and the only thing left is those doors, which is actually a cool idea since the door should be made from a much more matte, or less shiny, material like wood, plastic - so, why not rubber? So, with this in mind, I apply the main colour to the doors, similar to how I did for wheels, and then select the outer border faces in order to apply them to

Fig 14









the white colour (Fig.14).



Well, that is our tutorial for “Applying Materials & Shaders”. Next month we’re going to talk about types of lights and shadows, images that replace the lights (HDRI), photon-based lights, ray-trace lights, and much more. So, stay-tuned for the second part: “Lighting Setup & Rig (with HDRI)”.

TUC-TUC

Originally Designed & Modelled by: RICHARD TILBURY
Tutorial by: BOGDAN HORDUNA
For more from this artist, contact them at: suiobo@yahoo.com





Tuc-Tuc

SOFTIMAGE | XSI

Is our new precise, step-by-step tutorial which will begin with a vehicle model and cover the principals of applying shaders, placing it in a simple scene and following with a two-part section on both lighting and rendering. The tutorial will begin by creating and applying materials for the various parts of the car, such as glass, chrome and tyres, as well as texturing some simple geometry that will make up a scene. It will then move onto lighting where the focus will be on setting up a lighting rig and the various parameters connected to this. Finally the series will culminate with a section on rendering, where the aim will be to finish with a polished image. The schedule is as follows:

Issue 017 January 2007
Applying Materials & Shaders Part 1

Issue 018 February 2007
Applying Materials & Shaders Part 2

Issue 019 March 2007
Lighting Setup & Rig (with HDRI) Part 1

Issue 020 April 2007
Lighting Setup & Rig (with HDRI) Part 2

Issue 021 May 2007
Rendering Part 1

Issue 022 June 2007
Rendering Part 2

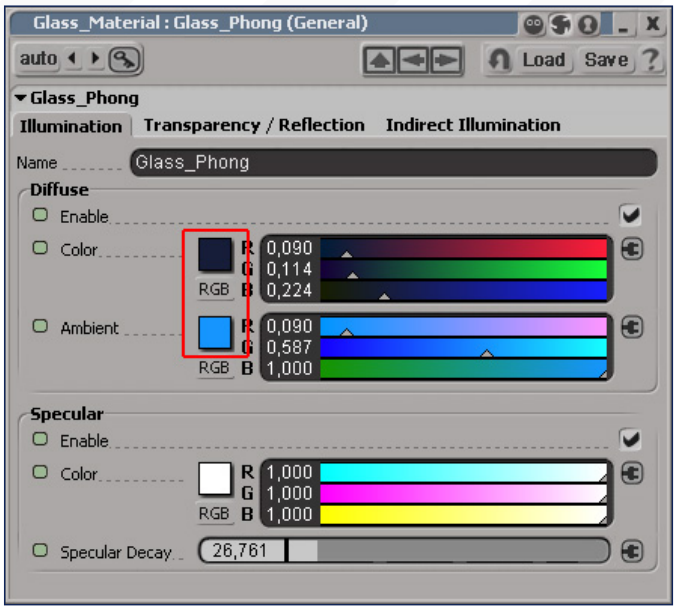
Enjoy ...

Assigning Materials & Shaders - Part 2

This month we'll complete the work on the materials and shaders that we set in the first part of the tutorial. Some minor changes and fine-tunings will be done later on in the other parts, but this time we will define the main aspects of every material of the vehicle.

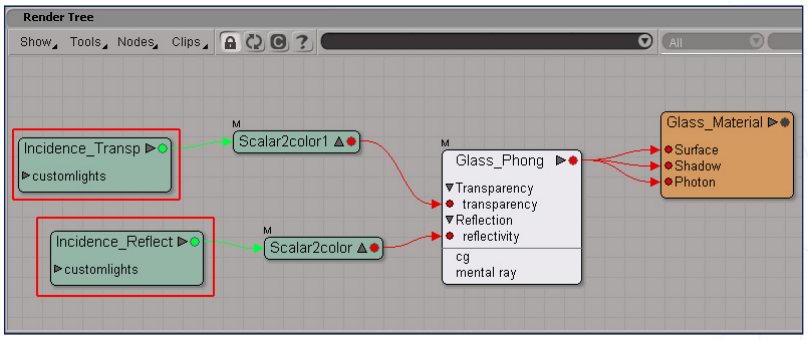
1. Let's start from the main Glass material. Locate it in the Material Editor (or select the glass object) and use the "7" shortcut key to open up the Render Tree. Double-click on the Glass_Phong node to open up its property page. Change the Diffuse Colour to something you like (in this case, a dark-blueish colour was chosen), and select a relative Ambient colour (brighter than the diffuse). Also, change the Specular Decay value to something like 26, as shown in Fig.01.

Fig 01



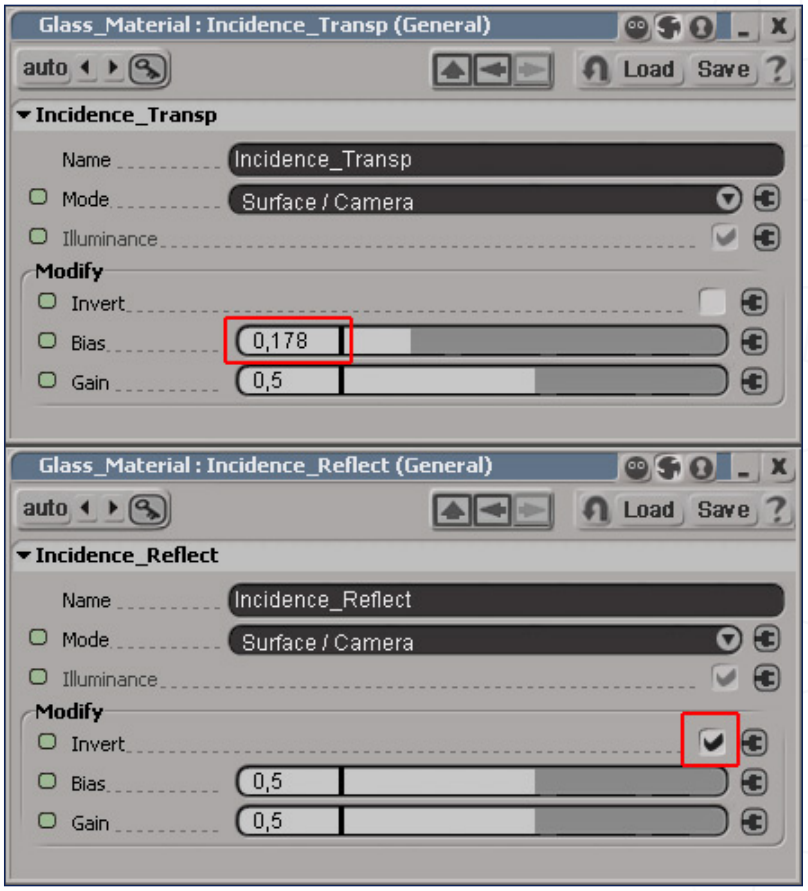
2. Now go back to the Render Tree and create two Incidence nodes (Nodes > Illumination > Incidence). Plug them in respectively to the Transparency and Reflectivity nodes of the Glass_Phong (Fig.02).

Fig 02



3. In Fig.03 you can see the property pages of the two Incidence nodes; they were renamed in "Incidence_Transp" and "Incidence_Reflect". Change the Bias value of Incidence_Transp to 0,178. Leave the values of the Incidence_ Reflect as they are, but check the Invert option.

Fig 03



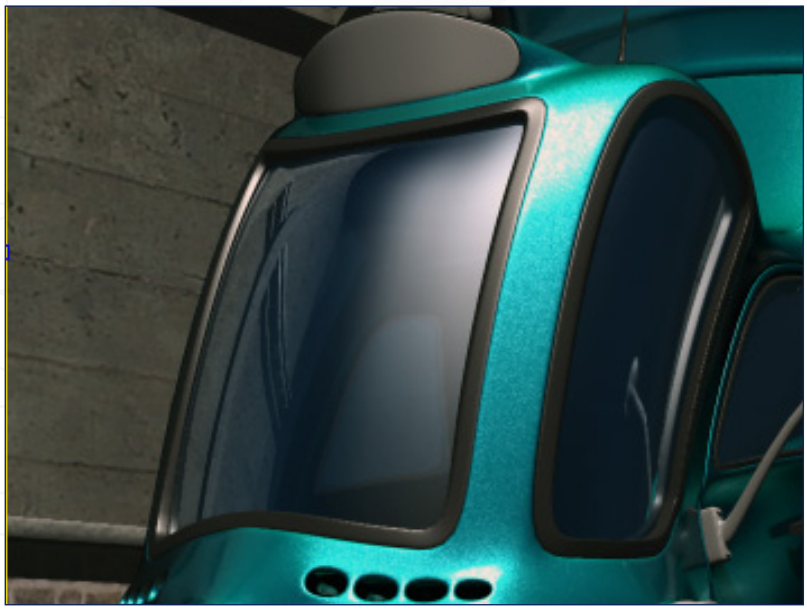


Fig 04

4. Region-Render the glass object area, and you should have something similar to Fig.04.

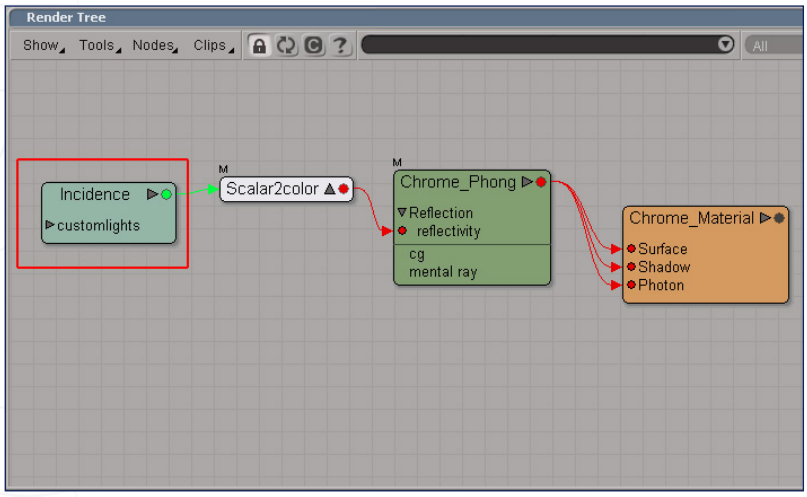


Fig 05

5. Now let's take care of the chromic parts. Select the Chrome material and open the Render Tree. Again, plug a new Incidence node into the Reflectivity node of Chrome_Phong (Fig.05).

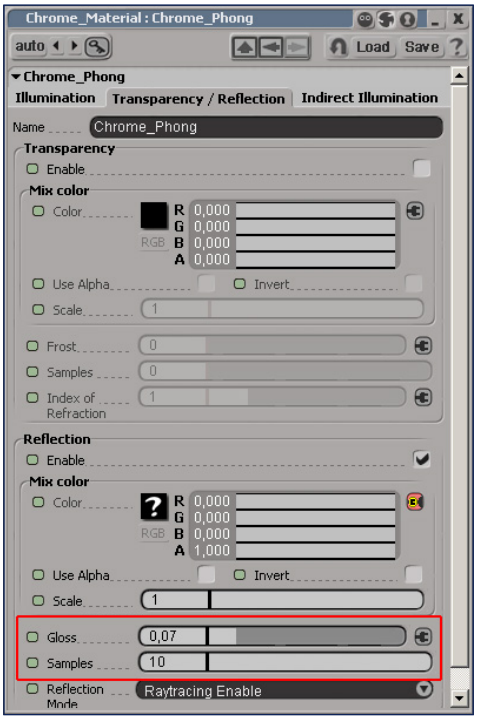


Fig 06

6. Double-click on the Chrome_Phong node and switch to the Transparency/Reflection tab and change the Gloss value of Reflection to 0,07. Set the Sample to 10 (don't forget that the larger this value, the longer the render time; once you have finished working on the chrome material you can set this value lower to have faster render times, and you can pump it up later on for the final rendering).

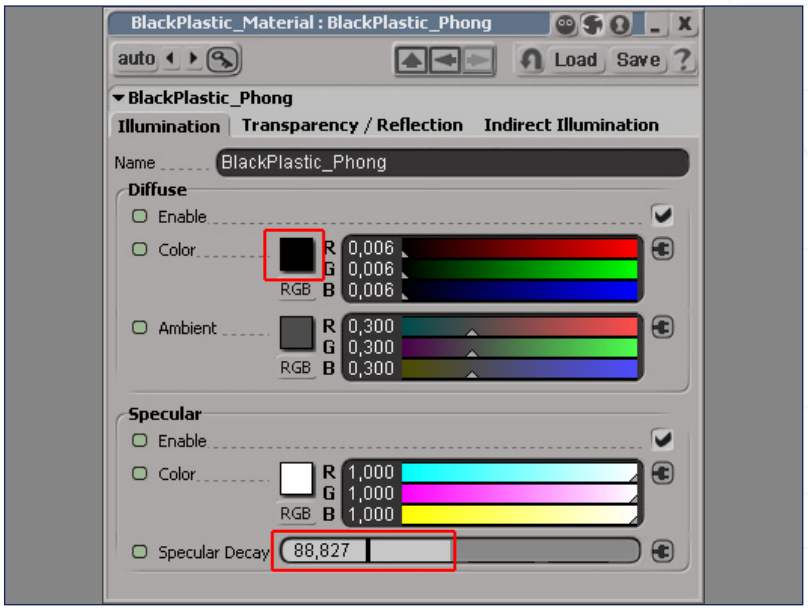
7. In Fig.07 you can see some different Render-Regions of the various chromic objects.

Fig 07



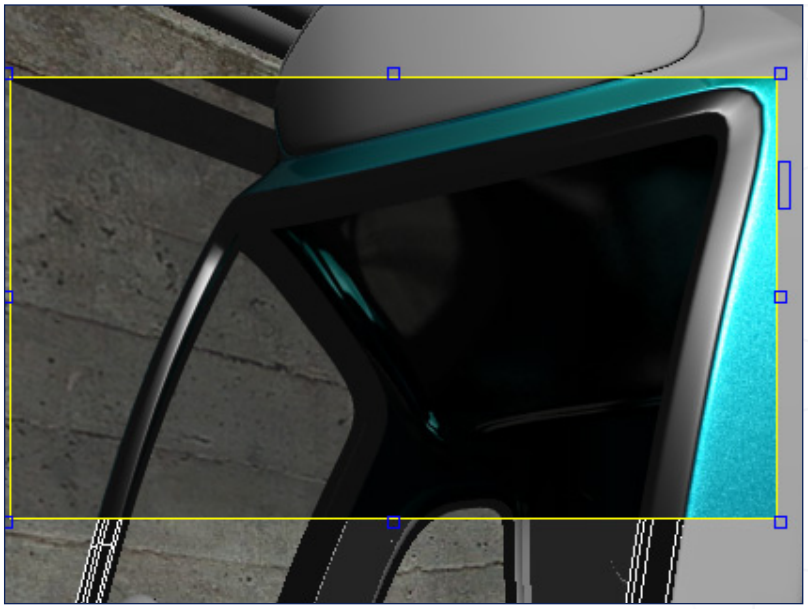
8. Now for the Black Plastic material. Double-click on the BlackPlastic_Phong node and make sure that the Diffuse colour is set to pure black. Leave the Ambient as a dark grey colour and change the Specular Decay to about 88 (Fig.08).

Fig 08



9. Do a quick test render to see how things are going. The Black Plastic does not need any particular texture and/or behaviour. We can leave it as it is.

Fig 09



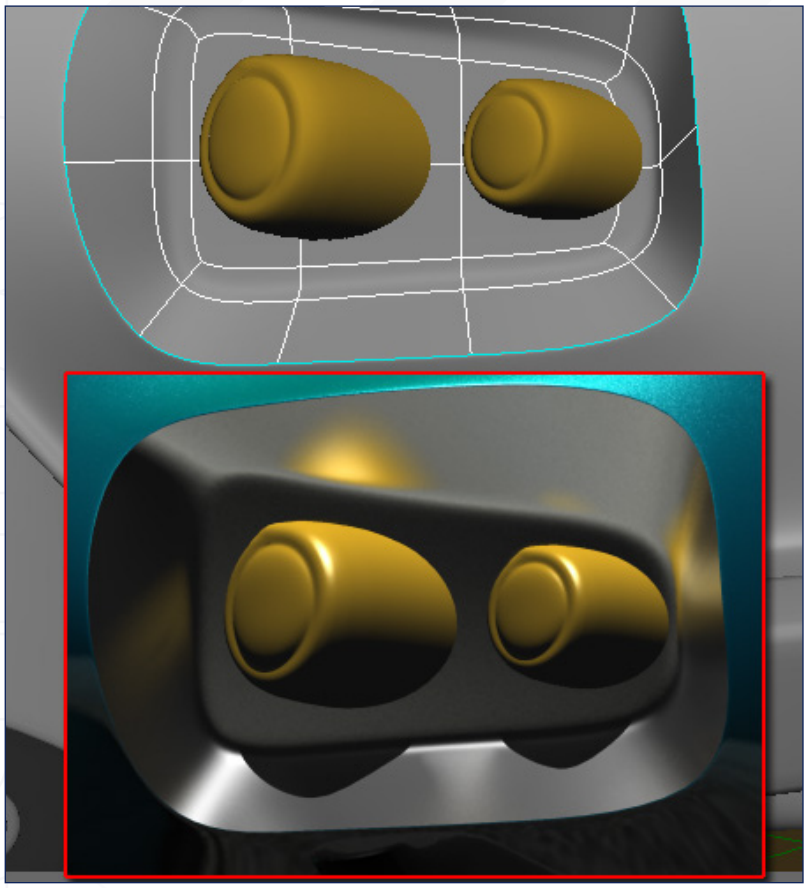


Fig 10

10. Now we need to make a little change to the vehicle mesh. Select the inner-part of the front lights (marked with the white wireframe in the top of Fig.10) and detach it from the rest of the mesh (use the Extract (Delete) command). Now select this new mesh and assign the Chrome material to it. Do a test render and see what happens. We have done so to create some nice reflections inside the front light area.

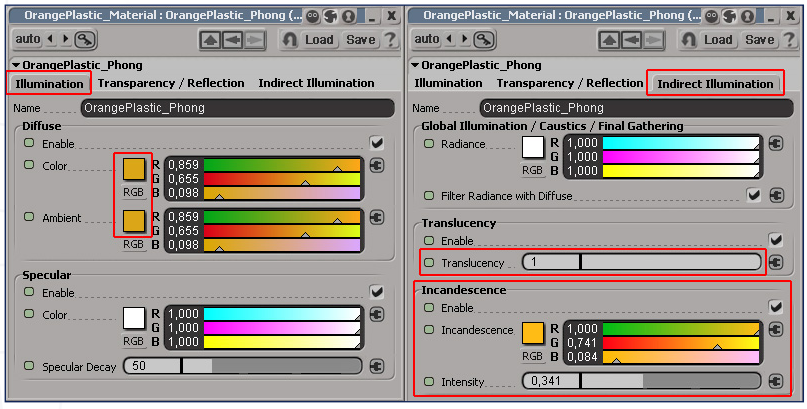


Fig 11

11. Now select the OrangePlastic material and open its properties page. Make sure that both Diffuse Colour and Ambient are set to the same, bright orange colour (or any other colour you like), as shown in left part of Fig.11. Switch to the Indirect Illumination tab, set the Translucency to 1, and the Incandescence Intensity to 0,341. Also set a bright orange colour for the Incandescence (right part of Fig.11).

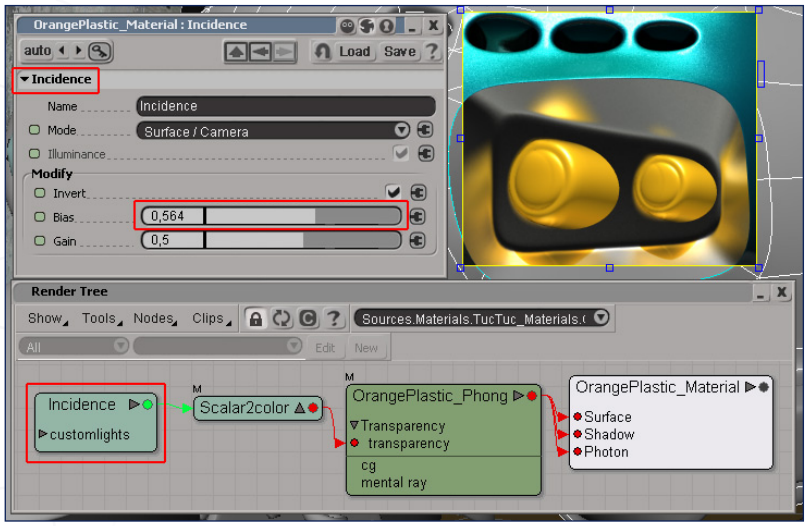
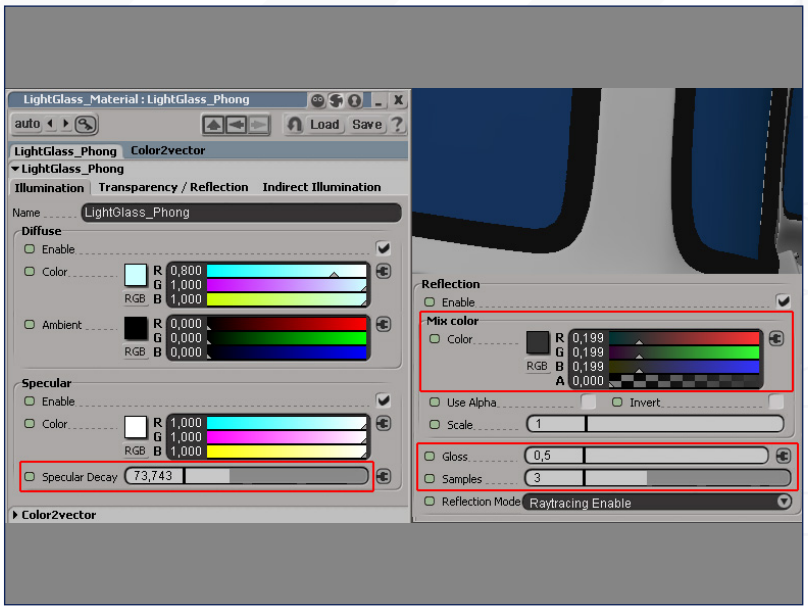


Fig 12

12. Go back to the Render Tree and plug a new Incidence node into the Transparency of OrangePlastic_Phong (Fig.12). Double-click on the Incidence node and change its parameters, as shown in the top-left part of Fig.12. Render-region the front light area.

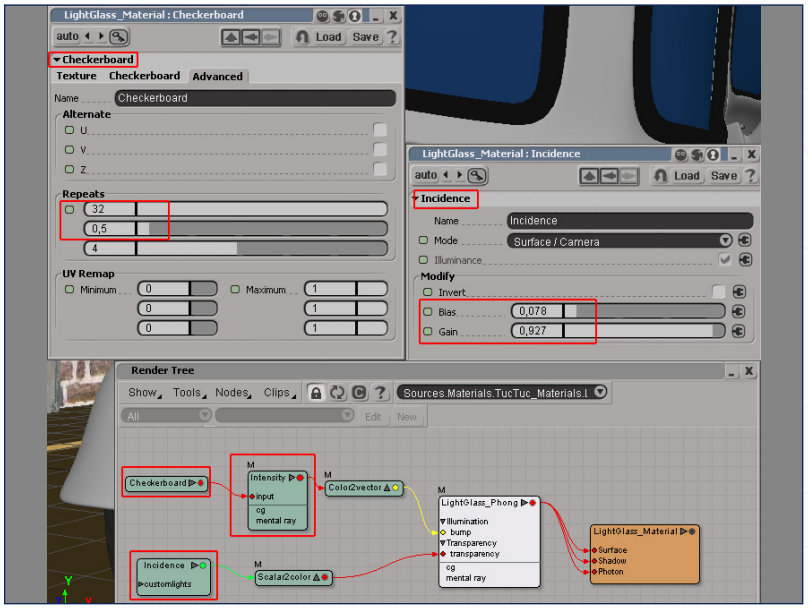
13. Now select the LightGlass material and open its property page. Set the Diffuse colour to almost white. Set the Specular Decay to about 73. Switch to the Transparency/Reflection tab and increase the value of the Reflection Mix colour (as shown in Fig.13). Set the Gloss value to 0,5 and the Samples value to 3.

Fig 13



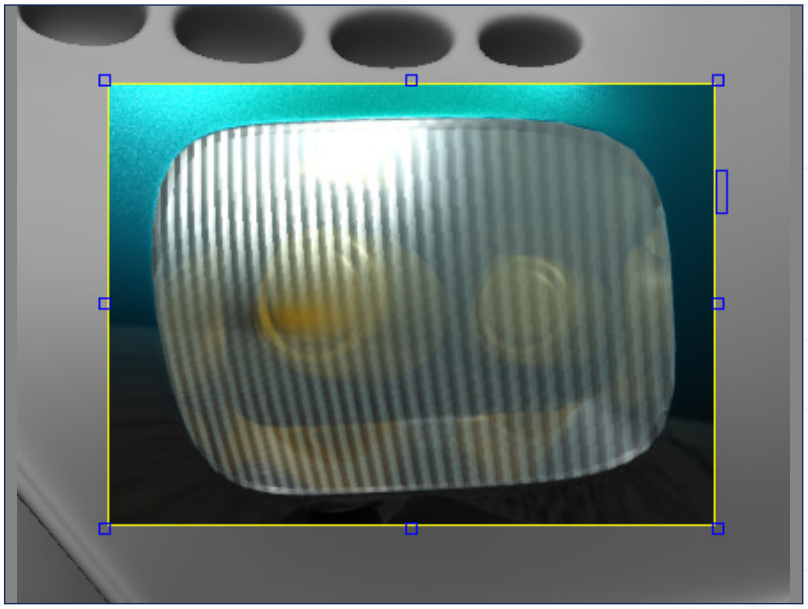
14. Go back to the Render Tree and create a Checkerboard texture node and an Incidence node. Plug the last one into the transparency of LightGlass_Phong node. Create also an Intensity node. Plug the Checkerboard node to the Intensity, and the Intensity to the Bump node of LightGlass_Phong (bottom part of Fig.14). Now double-click on the Checkerboard node and set the same values shown in the top-left part of Fig.14 (Repeats: 32 – 0,5 – 4). Double-click on the Incidence node and set its Bias value to 0,078, and the Gain value to 0,927.

Fig 14



15. Now you can do a quick test render to see how the glass light looks (Fig.15).

Fig 15



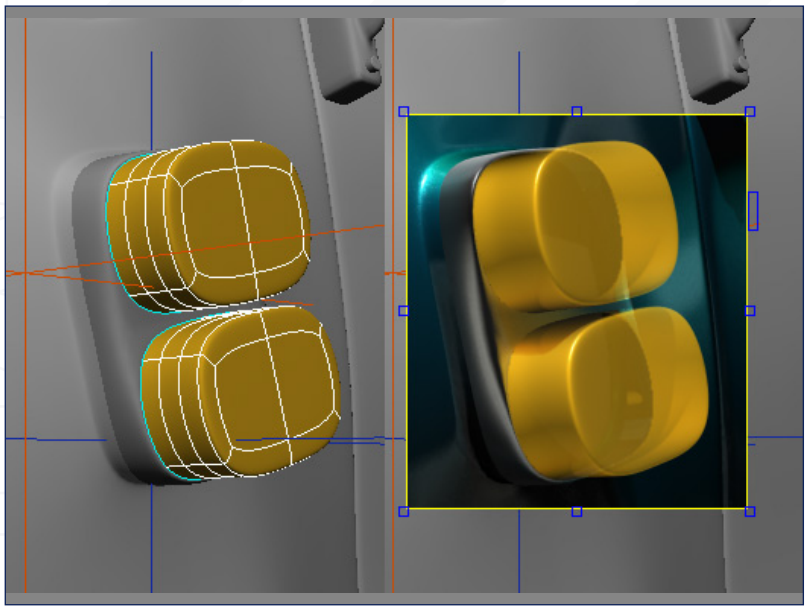


Fig 16

16. We need to make another change to the mesh: detach the part of the mesh marked with the white wirefame in left part of Fig.16. Assign the OrangePlastic material to it, and assign the Chrome material to the rest of the side light mesh. You can see a render of this area in the right part of Fig.16.

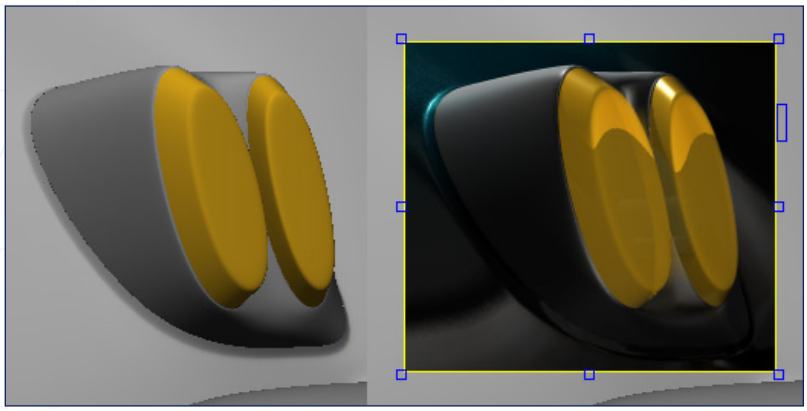


Fig 17

17. Repeat the same process for the other side light, and also for the back-lights (as shown in Fig.17). Detach the mesh, assign the OrangePlastic to it, and assign the Chrome material to the rest.

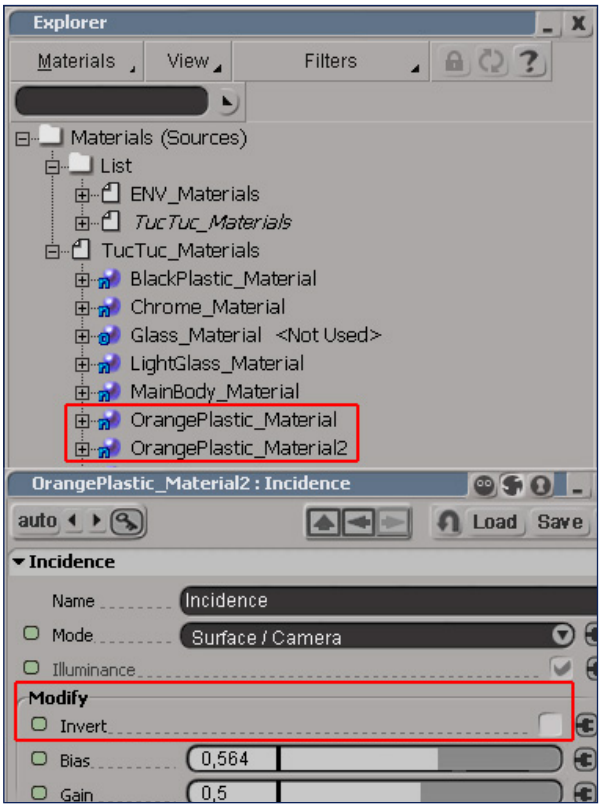
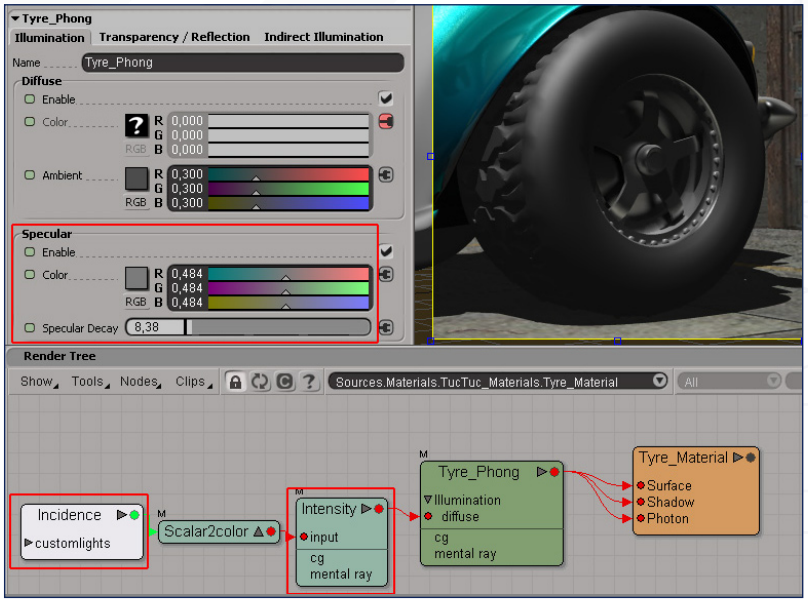


Fig 18

18. **Optional:** Open the Explorer ("8" shortcut key) and set it to show the materials. Select the OrangePlastic_Material and use Ctrl + C and then Ctrl + V to create a copy of this material. Select this new copy, open the Render Tree and reach its Incidence node. Double-click on it and un-check the Invert option, as shown in Fig.18. Now you can try to assign this new material to the main glass object. We have done this to create a variant for the glass material. Do a test render and see if you like this kind of glass best, or the previous one. I have decided to keep this second glass since it differs from the cold colours of the rest of the vehicle.

19. The Tyre material is quite simple. Plug an Incidence node into an Intensity node, and plug this last one into the Diffuse of Tyre_Phong. Leave all the parameters as they are, but change the Specular colour of Tyre_Phong to a medium grey and the Specular Decay to 8,38 (as shown in Fig.19). You can also see a test render on the top-right part of Fig.19.

Fig 19



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